Operator's Manual

Dumpers

6001/9001/10001

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The cover features the machine with possible optional equipment.

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1 Introduction

1.1 Important information on this Operator's Manual

Please store the Operator's Manual in the storage bin under the engine cover.

This Operator's Manual contains important information on how to work safely, correctly and economically with the machine. Therefore, it aims not only at new operators, but it also serves as a reference for experienced ones. It helps to avoid dangerous situations and reduce repair costs and downtimes. Furthermore, the reliability and the service life of the machine will be increased by following the instructions in the Operator's Manual. This is why the Operator's Manual must always be kept at hand in the machine.

Your own safety, as well as the safety of others, depends to a great extent on how the machine is moved and operated. Therefore, carefully read and understand this Operator's Manual prior to the first drive. This Operator's Manual will help to familiarise yourself more easily with the machine, thereby enabling you to use it more safely and efficiently.

Prior to the first drive, carefully read chapter “Safety Instructions” as well, in order to be prepared for possible dangerous situations, as it will be too late for it during operation. As a rule, keep the following in mind:

Careful and prudent working is the best way to avoid accidents!

Operational safety and readiness of the machine do not only depend on your skill, but also on maintenance and servicing of the machine. This is why regular maintenance and service work is absolutely necessary. Extensive maintenance and repair work must always be carried out by an expert with appropriate training. Insist on using original spare parts when carrying out maintenance and repair work. This ensures operational safety and readiness of your machine, and maintains its value.

Your Neuson dealer will be pleased to answer any further questions regarding the machine or the Operator's Manual.

Abbreviations/symbols

- This symbol stands for a list
  - Subdivision within lists or an activity. Follow the steps in the recommended sequence

☞ *This symbol requires you to carry out the activity described*

➥ Description of the effects or results of an activity

n. s. = not shown

“Opt” = option

Stated whenever controls or other components of the machine are installed as an option.

1.2 Brief description

The model 6001, 9001 and 10001 dumpers are self-propelled work machines.
Get informed on and follow the legal regulations of your country.
This machine is a versatile and powerful helper for moving earth, gravel and debris on construction sites and elsewhere. The main components of the machine are:

- Rollbar
- Hydraulic swivel skip or front skip
- Perkins/Deutz four cylinder diesel engine,
- Sturdy steel sheet chassis

1.3 Regulations

Requirements to be met by the driver

Earth moving machines may be driven and serviced only by persons who meet the following requirements:

- 18 years or older
- Physically and mentally suited for this work
- Persons have been instructed in driving and servicing the earth moving machine and have proven their qualifications to the contractor
- Persons are expected to carry out work reliably.

They have been appointed by the contractor for driving and servicing the earth moving machine.

Get informed on and follow the legal regulations of your country.

1.4 EC declaration of conformity: 6001 dumper

neuson

EC Declaration of Conformity

according to EC Directive 98/37/EC, 2000/14/EC Appendix 6

Neuson Baumaschinen GmbH
Haidfeldstr. 37
A-4060 Linz-Leonding

declare, under their own responsibility, that the product

Product name	Neuson compact four wheel dumper 6001
Model	6001
Version	6001
Serial no.	- - - - - - - - - - -

to which this declaration refers, corresponds to the pertinent fundamental requirements regarding safety and health of

EC Directive 98/37/EC,
and the requirements of further pertinent EC Directives and standards.
.

ISO 3471 and EN 13510	Tested		Administrative unit reported according to Appendix 6
2000/14/EC	information Noise level	dBA	
	Measured value	102	
	Guaranteed value	102	

The following standards and/or technical specifications have been used for the proper application of the requirements regarding safety and health stated in the EC Directives:
EN 474-1, EN 474-3, EN292-1, EN 292-2, ISO 3471, EN 13510;

Place of storage of technical documentation:
Neuson Baumaschinen GmbH
Department: R & D
Haidfeldstr. 37
A-4060 Linz-Leonding

Tredegar, _ _ . _ _ . _ _ _ _

Lee Morris/Technical Director

1.5 EC declaration of conformity: 9001/10001 dumpers

EC Declaration of Conformity

according to EC Directive 98/37/EC, 2000/14/EC Appendix 6

Neuson Baumaschinen GmbH
Haidfeldstr. 37
A-4060 Linz-Leonding

declare, under their own responsibility, that the product

Product name	Neuson compact four-wheel dumpers 9001, 10001
Models	9001, 10001
Versions	9001, 10001
Serial no.	- - - - - - - - - - -

to which this declaration refers, corresponds to the pertinent fundamental requirements regarding safety and health of

EC Directive 98/37/EC,
and the requirements of further pertinent EC Directives and standards.
.

ISO 3471 and EN 13510	Tested		Administrative unit reported according to Appendix 6
2000/14/EC	information Noise level	dBA	
	Measured value	103	
	Guaranteed value	103	

The following standards and/or technical specifications have been used for the proper application of the requirements regarding safety and health stated in the EC Directives:
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Haidfeldstr. 37
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Tredegar, _ _ . _ _ . _ _ _ _

Lee Morris/Technical Director

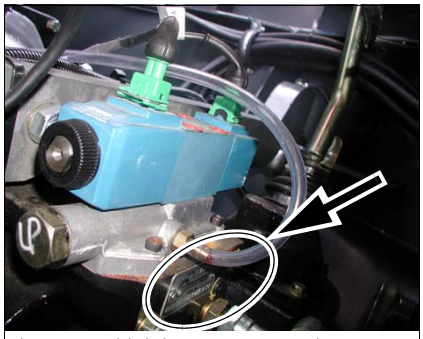


Fig. 1: Type label of torque converter gearbox

Type label of torque converter gearbox

The type label is located on the mounting base of the forwards/reverse drive changeover valve.

Fig. 2: Rollbar type label

Rollbar type label

The type label is located on the right on the rollbar

Fig. 3: Cab (option) type label

Cab (option) type label

The type label is located in the cab on the left on the cab frame

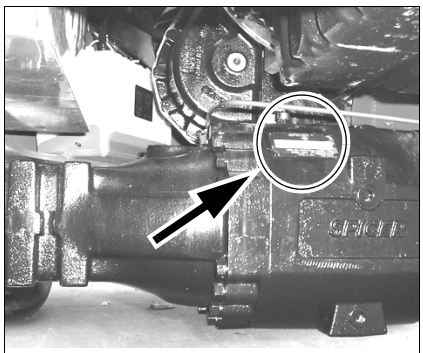


Fig. 4: Axle type label

Axle type label

The type label (arrow) is located on the upper side of the axle housing.

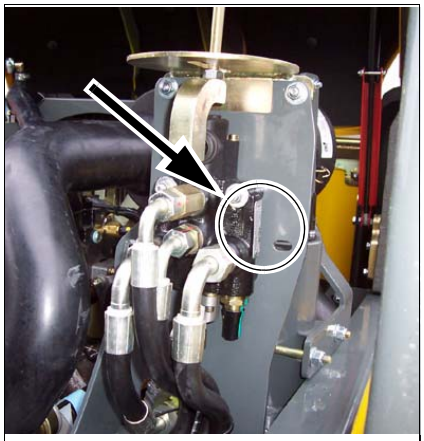


Fig. 5: Type label for front skip spool

Fig. 5: Swivel skip spool type label

Spool number

The type label (arrow) is located on the spool housing

1.6 Labels

The following states signs and symbols which are not unequivocally comprehensible. They do not contain explanatory text and are not explained in the following chapters.

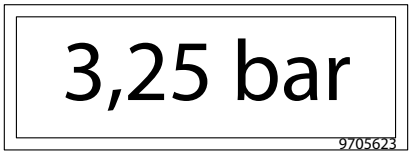


Fig. 6: Tyre pressure label

Meaning

This label states the tyre pressure.

Position (6001)

On the skip and the mudguards

Fig. 7: Tyre pressure label

Meaning

This label states the tyre pressure.

Position (9001, 10001)

On the skip and the mudguards

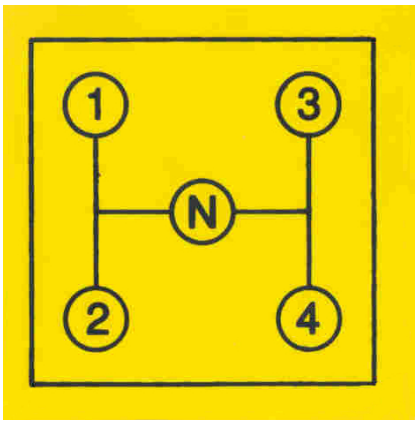


Fig. 8: Gearshift layout label

Meaning

This label states the gearshift layout.

Position (9001 and 10001 from serial number AD)
Position (6001 to serial number AD)

On the skip and the mudguards

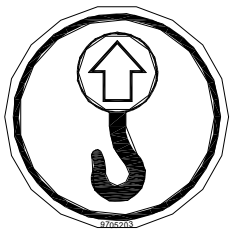


Fig. 9: Eye hook label

Meaning

Machine is raised by the eye hooks

– *see chapter 3.10 Crane handling the machine* on page 3-39

Position (6001, 9001 and 10001)

On the rear chassis next to the eye hook

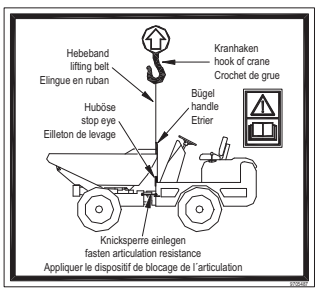


Fig. 10: Label with indications for loading the machine

Meaning

Loading indications for machine.

– *see chapter 3.12 Strapping down the machine* on page 3-41

Position (6001, 9001 and 10001)

On the engine cover

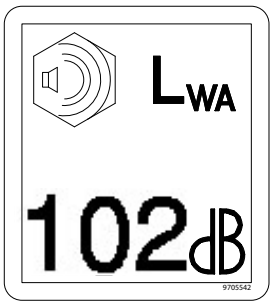


Fig. 11: Noise level label

Meaning

Noise levels produced by the machine.

L_{WA} = sound power level

Other information – *see chapter 6.11 Noise levels* on page 6-4

Position (6001)

On the engine cover

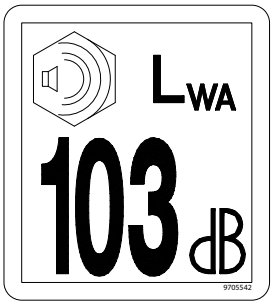


Fig. 12: Noise level label

Meaning

Noise levels produced by the machine.

L_{WA} = sound power level

Other information – *see chapter 6.11 Noise levels* on page 6-4

Position (9001 and 10001)

On the engine cover

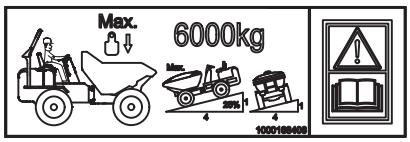


Fig. 13: Label for driving on slopes with the front skip

Meaning

This label indicates the maximum authorised angle of inclination for driving on slopes, whatever the position of the machine.

Position (6001)

On the rear chassis

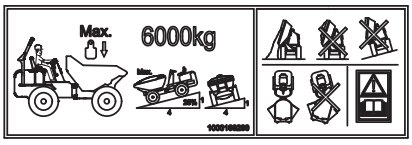


Fig. 14: Label for driving on slopes with the swivel skip

Meaning

This label indicates the maximum authorised angle of inclination for driving on slopes, whatever the position of the machine.

Position (6001S)

On the rear chassis

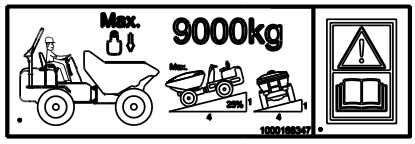


Fig. 15: Label for driving on slopes with the front skip

Meaning

This label indicates the maximum authorised angle of inclination for driving on slopes, whatever the position of the machine.

Position (9001)

On the rear chassis

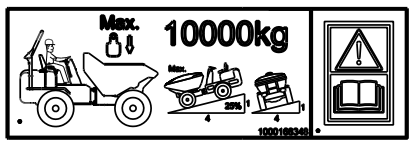


Fig. 16: Label for driving on slopes with the front skip

Meaning

This label indicates the maximum authorised angle of inclination for driving on slopes, whatever the position of the machine.

Position (10001)

On the rear chassis

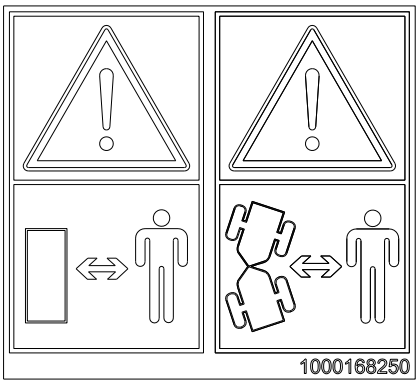


Fig. 17: Label indicating safe distances

Meaning

Indicates that persons other than the driver must keep a safe distance to the machine during operation!

Position (6001, 9001 and 10001)

On left and right of front chassis

Fig. 18: Diesel fuel label

Meaning

Fill in diesel fuel only!

Position (6001, 9001 and 10001)

On the fuel filler inlet

Fig. 19: Hydraulic oil label

Meaning

Hydraulic oil filler inlet

– *see chapter Filling up hydraulic oil* on page 5-19

Position (6001, 9001 and 10001)

On the filler inlet of the hydraulic oil tank

Fig. 20: Label: maintenance prop

Meaning

Fold down the maintenance prop before carrying out work underneath the skip.

Position (6001, 9001 and 10001)

On the swivelling console at the front

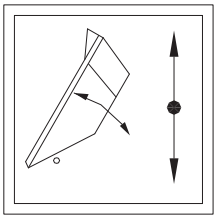


Fig. 21: Label: dumping out the skip

Meaning

Shows how the skip can be dumped out.

Position (6001, 9001 and 10001)

On the engine cover

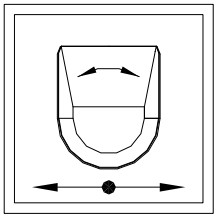


Fig. 22: Label: rotating the skip

Meaning

Shows how the skip can be swivelled.

Position (6001S)

On the engine cover

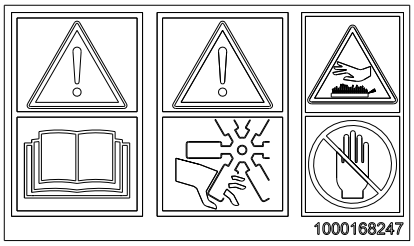


Fig. 23: Label: caution

Meaning

Caution – rotating or hot parts! Read the Operator's Manual.

Position (6001, 9001 and 10001)

On the engine cover

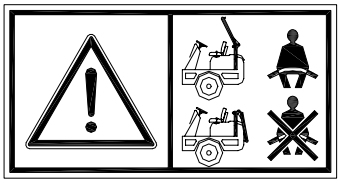


Fig. 24: Label: lap belt

Meaning

Always fasten the lap belt if the rollbar is raised!

Fastening the lap belt is prohibited if the rollbar is lowered!

Position (6001, 9001 and 10001)

On the engine cover

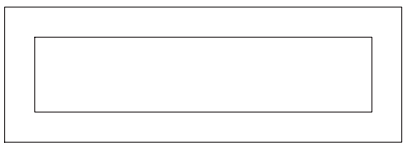


Fig. 25: Label: serial number

Meaning

This label states the serial number of the machine.

Position (6001, 9001 and 10001)

At the front right of the rear chassis

2 Safety Information

2.1 Safety Symbols Found in this Manual

This is the safety alert symbol. it is used to alert you to potential personal hazards.

- Obey all safety messages that follow this symbol to avoid injury or death.

Danger!

indicates a hazardous situation which, if not avoided, will result in death or serious injury.

☞ Obey all safety messages that follow this symbol to avoid injury or death.

Warning!

indicates a hazardous situation which, if not avoided, could result in death or serious injury.

☞ Obey all safety messages that follow this symbol to avoid possible in jury or death.

Caution!

indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

☞ Obey all safety messages that follow this symbol to avoid possible minor or moderate injury.

Notice

Contains additional information important to a procedure.

Note: Contains additional information important to a procedure.

Important!

“Important” identifies an instruction that, when followed, provides for a more efficient and economical use of the machine.

Environment!

Failure to observe the instructions identified by this symbol can result in damage to the environment. The environment is in danger if environmentally hazardous material, such as waste oil, is not subject to proper use or disposal.

2.2 Warranty

Warranty claims can be brought forward to your Wacker Neuson dealer only. This requires, among other things, following the instructions in this Operator's Manual.

2.3 Designated Use and Exemption from Liability

- In accordance with its designated use, the machine may be used ONLY for moving earth, gravel, coarse gravel or ballast and rubble. It may also be used for working with the attachments mentioned in the "Fields of Application" chapter.
- No other applications are designated for the use of the machine. Wacker Neuson will not be liable for damage resulting from use other than mentioned above. The user alone will bear the risk.
- "Designated use" also includes observing the instructions set forth in this Operator's Manual and observing the maintenance schedule.
- Machine safety can be negatively affected by carrying out machine modifications without proper authority and by using spare parts, equipment, attachments and optional equipment which have not been checked and released by Wacker Neuson. Wacker Neuson will not be liable for damage resulting from unapproved parts or unauthorized modifications.
- Wacker Neuson shall not be liable for personal injury and/or damage to property caused by failure to observe the safety instructions on labels and in this Operator's Manual, and by the negligence of the duty to exercise due care when:
  - handling the machine
  - operating the machine
  - servicing the machine and carrying out maintenance work
  - repairing the machine

  ☞ This is also applicable when special attention has not been drawn to the duty to exercise due care.
- Read and understand this Operator's Manual before starting up, servicing or repairing the machine. Observe all safety instructions.
- The machine may NOT be used for transport jobs on public roads!

2.4 General Conduct and Safety Instructions

Conditions for use

- The machine has been designed and built in accordance with state-of-the-art standards and recognized safety regulations. Nevertheless, its use can constitute a risk to life and limb of the user or of third parties, or cause damage to the machine and to other material property.
- Read and follow this Operator's Manual and other manuals that accompany the machine.
- The machine must only be used in accordance with its designated use and the instructions set forth in this Operator's Manual.
- The machine must only be used by safety-conscious persons who are fully aware of the risks involved in operating the machine.
- The machine must only be used when it is in technically perfect condition. Any mechanical dysfunctions, especially those affecting the safety of the machine, must be repaired immediately.
- The user/owner commits himself to operate and keep the machine in perfect condition and, if necessary or required by law, to require the operating or servicing persons to wear protective clothing and safety equipment

User training and knowledge

- Always keep this Operator's Manual and other manuals that accompany the machine on hand in their storage bin at the place of use of the machine. Immediately replace an incomplete or illegible Operator's Manual.
- All persons working on or with the machine must read and understand the safety information in this Manual before beginning work. This applies especially to persons working only occasionally on the machine, such as performing set-up or maintenance tasks.
- Follow, and instruct the operator in, legal and other mandatory regulations relevant to accident prevention and environmental protection.These may include handling hazardous substances, issuing and/or wearing personal protective equipment, or obeying traffic regulations.
- The user/owner must regularly ensure that all persons entrusted with operation or maintenance of the machine are working in compliance with this Operator's Manual and are aware of the risks and safety factors of the machine.

Preparing for use

- Before starting up the machine, ALWAYS inspect the machine to make sure that it is ready for safe work and road operation.
- Wear close-fitting work clothes that do not hinder movement. Tie back long hair and remove all jewelry (including rings).
-

Modifications and spare parts

- NEVER make any modifications, additions or conversions to the machine and its superstructures (for example, cab, etc.), or the machine's attachments, without the approval of Wacker Neuson! Such modifications may affect safety and/or machine performance. This also applies to the installation and adjustment of safety devices and valves, as well as to welding work on load-bearing elements.
- Spare parts must comply with the technical requirements specified by Wacker Neuson. Contact your Wacker Neuson dealer for assistance.

2.5 Staff Qualifications and Basic Responsibilities

User/owner responsibility

- Only allow trained and experienced individuals to drive, maintain, or repair the machine. NEVER let unauthorized or underaged persons drive or work with the machine.
- Clearly and unequivocally define the individual responsibilities of the staff for operation, maintenance, and repair.
- Define the machine operator's responsibilities on the job site and for observing traffic regulations. Give the operator the authority to refuse instructions by third parties that are contrary to safety.
- Do not allow persons to be trained or instructed by anyone other than an experienced person. Also, NEVER allow persons taking part in a general training course to work on or with the machine without being permanently supervised by an experienced person.

Repair person qualifications

- Work on the electric system and equipment, on the undercarriage and the steering and brake systems may be carried out only by skilled individuals who have been specially trained for such work.
- Work on the hydraulic system of the machine must be carried out only by staff with special knowledge and experience in hydraulic equipment.

2.6 Safety instructions Regarding Operation

Preparing for use

- Keep the machine clean. This reduces the risk of fire hazards (such as from combustible materials like rags), and reduces the risk of injury or operational accidents that can be caused by dirt build-up on the drive pedals or footholds.
- Observe all safety, warning, and informational signs and labels on the machine.
- Start and operate the machine from the seat only.
- The operator must sit in the seat, fasten and tighten the seat belt before putting the machine into operation.
- Always adjust the seating position before starting work. Never change the seat position when driving or working!
- Make sure that all safety devices are properly installed and functional before starting work.
- Before putting the machine/attachment into operation (startup/moving), make sure that no one in the immediate vicinity will be at risk.

Startup and shutdown

- Carry out startup and shutdown procedures according to this Operator's Manual.
- Observe all indicator lights.
- Do not use starting fluid (for example, ether) especially in those cases in which a heater plug (intake air pre-heating) is used at the same time.
- Make sure the drive levers, the signaling and the light systems are functional before operating the machine, and also before restarting after an interruption of work.
- 6001 Dumper: Make sure that the service brake and the parking brake are functional before operating the machine, and also after a work interruption. The drive must be switched off if the parking brake is applied
- Fold up the control lever base before releasing the seat belt in order to avoid unintentional operation.

Work area awareness

- Familiarize yourself with the surroundings and circumstances of the work site before beginning work. Be aware of:
  - obstacles in the working and traveling area
  - the soil bearing capacity
  - any necessary barriers separating the work site from public roads
- Always keep at a safe distance from the edges of building pits and slopes.
- Look out for the following when working in buildings or in enclosed areas:
  - height of the ceiling/clearances
  - width of entrances
  - maximum load of ceilings and floors
  - sufficient room ventilation—danger of carbon monoxide poisoning!
- Observe the danger area. See “Danger area awareness”.
- Always use the rearview mirror.
- Always switch on the work lights in conditions of poor visibility and after dark. However, make sure that users of public roads will not be temporarily blinded by the work lights.
- Provide additional lighting of the work area if the lights of the machine are not sufficient for carrying out work safely.

Danger area awareness

- The danger area is the area in which persons are in danger due to the movements of the machine, work equipment, additional equipment, or material.
- The danger area also includes the area affected by falling material, equipment or construction debris. The danger area must be extended by 0.5 m (20 inches) in the immediate vicinity of buildings, scaffolds, or other elements of construction.
- Seal off the danger area if it is not possible to keep a safe distance. Stop work immediately if persons do not leave the danger area in spite of warnings!

Operating the machine

- Never operate the machine if you are standing on the ground.
- Operate the machine ONLY when you are seated and you have fastened your seat belt. Switch off the engine before releasing the seat belt.
- On sloping terrain, adapt your drive speed to the prevailing ground conditions.
- Never get on or off a moving machine, and Never jump off the machine.

Carrying passengers

- Always adapt your drive speed to the road and ground conditions, and to the visibility conditions. Ask for help in navigating difficult passages or obstacles. To avoid tipping the dumper, drive appropriately and slowly as conditions dictate. This applies in particular to rough terrain, the edges of trenches, curves and emergency braking. Use only the low speed range when driving off-road (see the turtle indicator on the instrument panel).
- 6001 Dumper: Proceed with extreme care when driving on slopes. The dumper can be driven on firm ground in all positions on slopes up to 25%.
- Make sure the engine cover is closed and locked before starting the dumper.
- Apply the parking brake when parking the machine. If possible, do not park the dumper on slopes. If this cannot be avoided, use wheel chocks, etc. Lower the skip before leaving the dumper. Apply the parking brake only in an emergency when driving the machine.

- Keep the base plate of the skip in a clean condition so that the material is easily dumped out of the skip. Load only material that can be easily dumped out.
- Never drive too close to the edges of unsecured pits, precipices, etc. The pressure of the wheels on the ground can cause the edge to give way.
- Never dump material into trenches where people are working. If the driver cannot see into the trench, he or she must be guided by someone who can see into the trench.
- Always make sure the brakes are in perfect condition.

Carrying passengers

- Apart from the driver, do not allow anyone to ride on the machine.
- Never lift, lower, or carry persons in the work equipment or attachments.
- Never install a man basket or a working platform to the machine.

Mechanical integrity

- Take the necessary precautions to make sure the machine is used only when in a safe and reliable state.
- Operate the machine ONLY if all protective and safety-oriented devices (ROPS, removable safety devices, soundproofing elements, exhausters, etc.) are in place and fully functional.
- Check the machine at least once a day/per work shift for visible damage and defects. Report any changes, including changes in the machine's working behavior, to your supervisor immediately!
- If the machine is behaving unpredictably, stop the machine immediately, lock it, and report the malfunction to the competent authority/person. Safety-relevant damage or malfunctions of the machine must be rectified immediately.

Driving on public roads

- When driving on public roads, ways and places, observe all applicable traffic regulations. If necessary, make sure beforehand that the machine is in compliance with these regulations.
- When crossing underpasses, gates, bridges and tunnels, or when passing under overhead lines, make sure the clearance height and width are sufficient.

2.7 Trailering and Transport

Trailers

- Even though the dumper is equipped with towing gear, it is not a tractor and may not be used as such in difficult terrain.
- If the dumper is used on construction sites for towing trailers, weight the skip with 25% of the payload. However, do not exceed the dumper's maximum payload with the combination of towed equipment and the weight in the skip!
- Secure the towing pin of the towing gear with a split pin.
- Counterweights affect handling and the machine's steering capability.
- Use special care when coupling trailers, and couple them with the specially required devices only.
- Always secure trailers against unintentional movement.
- If optional equipment such as a trailer is installed, make sure that all lights and associated indicator lamps are installed and functional.

Transport

- The machine must be towed, loaded, and transported only in accordance with procedures described in this Operator's Manual.
- For towing the machine, observe the prescribed transport position, admissible speed, and itinerary.
- Make sure that the vehicle transporting the machine has a sufficient capacity and payload.
- Safely secure the machine on the transporting vehicle. Use the specified tie-down points.

2 Temperature Range

The machine may only be used between a maximum +45°C (113°F) and minimum -15°C (5°F). Contact your Wacker Neuson dealer if you intend to use the machine in other temperature ranges. Store the machine in a dry place at room temperature (about 15°C, or 59°F). Observing these temperature ranges will help to prolong the machine's service life.

2 Safety Guidelines for Maintenance

General maintenance notes

- Adhere to prescribed intervals or those specified in this Operator's Manual for routine checks/inspections and maintenance work.
- For inspection and maintenance work, ensure that all tools and workshop equipment are adapted to the task that must be performed.
- Replace hydraulic hoses within stipulated and appropriate intervals even if no safety-relevant defects have been detected.
- Make sure all consumables and replaced parts are disposed of safely and with minimum environmental impact.
- Always tighten any screws, electrical connections, or hose connections that may have been loosened during maintenance.
- Upon completion of the maintenance and repair work, immediately refit and check any safety devices removed for set-up or maintenance purposes.

Personal safety measures

- Brief the staff and the driver before beginning maintenance or repair work. Appoint someone to supervise the activities.
- Always work in groups of two. Both persons must be trained on the machine—one person must be seated on the seat and maintain visual contact with the other person.
- Observe the specific safety instructions in the Maintenance section of this Operator's Manual.
- Always keep a safe distance from all rotating and moving parts, for example, fan blades, V-belt drives, PTO shaft drives, fans, etc.
- Before starting work on machine parts dangerous to life and limb (bruising, cutting), always ensure safe blocking/support of these areas.
- Apply special care when working on the fuel system due to the increased danger of fire.
- Engine block and exhaust system become very hot during operation and require cool-down time after machine is shut off. Avoid contact with hot parts. Wait for the machine to cool before touching components.
- Retainer pins can fly out or splinter when struck with force. Avoid striking the pins during operation, repair, or maintenance.

- Do not use starting fluid (for example, ether), especially in those cases in which a heater plug (intake air pre-heating) is used at the same time.

Preparing for maintenance and repair work

- Prior to carrying out repair and maintenance work, always attach a warning label such as “Repair work—do not start machine!” to the control elements as a precautionary measure.
- Observe the startup and shutdown procedures set forth in this Operator’s Manual. This applies to any work concerning the operation, conversion or adjustment of the machine and its safety-oriented devices, or any work related to inspection and maintenance.
- Prior to carrying out assembly work on the machine, make sure no movable parts will roll away or start moving.
- Carry out maintenance work ONLY if:
  - the machine is positioned on firm and level ground
  - secured against unintentional movement
  - all hydraulically movable attachments and working equipment have been lowered to the ground
  - if the engine is switched off
  - if the ignition key has been removed
  - the pressure accumulator is empty
- Carry out maintenance work beneath a raised machine, attachments or additional equipment ONLY if a safe and secure support has been provided. The use of hydraulic rams or jacks as the sole method of support does NOT sufficiently secure raised machines or equipment/attachments!

Performing maintenance and repairs

- Observe the adjustment, maintenance and inspection activities and intervals set forth in this Operator’s Manual, including information on the replacement of parts and partial equipment. These activities must be carried out only by qualified personnel.
- Disconnect the negative battery terminal when working on the electrical system.
- Do not allow the machine to be serviced, repaired, or test-driven by unauthorized staff.
- If maintenance with the engine running cannot be avoided, lower the skip and apply the parking brake.
- Wear a safety harness when performing elevated maintenance work. Keep all handles, steps, handrails, platforms, landings, and ladders free from dirt, snow and ice.
- Always use specially designed or otherwise safety-oriented ladders and working platforms to carry out overhead assembly work. NEVER use machine parts or attachments/superstructures as a climbing aid!
- Do not use the work equipment as lifting platforms for persons.
- In accordance with this Operator’s Manual and instructions for the respective assembly, release the pressure in all system sections and pressure lines (hydraulic system) before carrying out any maintenance work.

2.1 Special Hazards

Battery

- In case of a frozen battery or of an insufficient electrolyte level, do not try starting the machine with battery jumper cables. The battery can burst or explode.
- Batteries contain caustic sulphuric acid. When handling the battery, observe the specific safety instructions and regulations relative to accident prevention.

- A volatile oxyhydrogen mixture forms in batteries during normal operation and especially when charging. Always wear gloves and eye protection when working with batteries.
- Starting the machine with a battery jumper cable can be dangerous if carried out improperly. Observe the safety instructions regarding the battery.

Chains (Track dumpers)

- Repair work on the chains must be carried out only by trained technical staff or by an authorized workshop.
- Defective chains reduce the machine's operational safety. Therefore, check the chains regularly for cracks, cuts or other damage.
- Check chain tension at regular intervals.

Electric energy

- Use only original fuses with the specified current rating.
- In case of electrical system malfunctions, switch off the machine immediately, disconnect the battery (by using the battery master switch), and carry out trouble-shooting procedures.
- When working with the machine, maintain a safe distance from overhead electric lines! If work must be carried out close to overhead lines, the equipment and attachments must be kept well away from them.
- If the machine comes into contact with a live wire:
  - Immediately drive the machine out of the danger area.
  - Warn others against approaching and touching the machine.
  - Do not leave the machine until the line that has been touched or damaged has been safely de-energized!
- Make sure that work on the electric system is carried out only by a technician with appropriate training, in accordance with applicable electrical engineering codes.
- Inspect and check the electrical equipment of the machine at regular intervals. Defects such as loose connections or scorched cables must be repaired immediately.
- Observe the operating voltage of the machine/attachments.
- Always remove the grounding strap from the battery when working on the electric system.

Hydraulics

- Check all lines, hoses, and screwed connections regularly for leaks and obvious damage. Repair any damage and leaks immediately. Splashed oil can cause injury and fire!

Noise

- Close all sound baffles during operation.
- Wear ear protection. This is especially important when performing hammer operations or working in enclosed areas.

MSDS

- When handling oil, grease, and other chemical substances such as battery electrolyte or hydraulic fluid, observe the product-related safety regulations (Material Safety Data Sheet: MSDS).

Tires (Wheel dumpers)

- Repair work on the tires must be carried out only by trained technical staff or by an authorized workshop.
- Defective tires reduce the machine's operational safety. Therefore, check the tires regularly for cracks, cuts or other damage.
- Check the tire pressure at regular intervals.

2.2 Safety Guidelines while using Internal Combustion Engines

Warning!

Internal combustion engines present special hazards during operation and fueling. Failure to follow the warnings and safety guidelines could result in severe injury or death.

☞ *Read and follow the warning instructions in the engine owner's manual and the safety guidelines below.*

Guidelines for running the engine

- Keep the area around exhaust pipe free of flammable materials.
- Check the fuel lines and the fuel tank for leaks and cracks before starting the engine. Do not run the machine if fuel leaks are present or the fuel lines are loose.
- Never run the machine indoors or in an enclosed area such as a deep trench unless adequate ventilation, through such items as exhaust fans or hoses, is provided. Exhaust gas from the engine contains poisonous carbon monoxide gas; exposure to carbon monoxide can cause loss of consciousness and may lead to death.
- Never smoke while operating the machine.
- Never run the engine near open flames.
- Never touch the engine or muffler while the engine is on or immediately after it has been turned off.
- Never operate a machine when its fuel cap is loose or missing.
- Never remove the radiator cap when the engine is running or hot. The radiator fluid is hot and under pressure, and may cause severe burns!

Guidelines for fueling the engine

- Clean up any spilled fuel immediately.
- Refill the fuel tank in a well-ventilated area.
- Replace the fuel tank cap after refueling.
- Never smoke when refueling the engine.
- Never refuel a hot or running engine.
- Never refuel the engine near an open flame.

3 Operation

This chapter describes the controls, and contains information on the function and handling of the telltales and controls on the control stand.

The pages stated in the table refer to the description of the controls.

A combination of digits, or a combination of digits and letters (e.g. 40/18 or 40/A) used for identifying the control elements, means:
fig. no. 40/control element no. 18 or position A in fig. no. 40

Figures carry no numbers if they are placed to the left of the text.

The symbols used in the description have the following meanings:

- This symbol stands for a list
  - Subdivision within lists or an activity. Follow the steps in the recommended sequence

☞ *This symbol requires you to carry out the activity described*

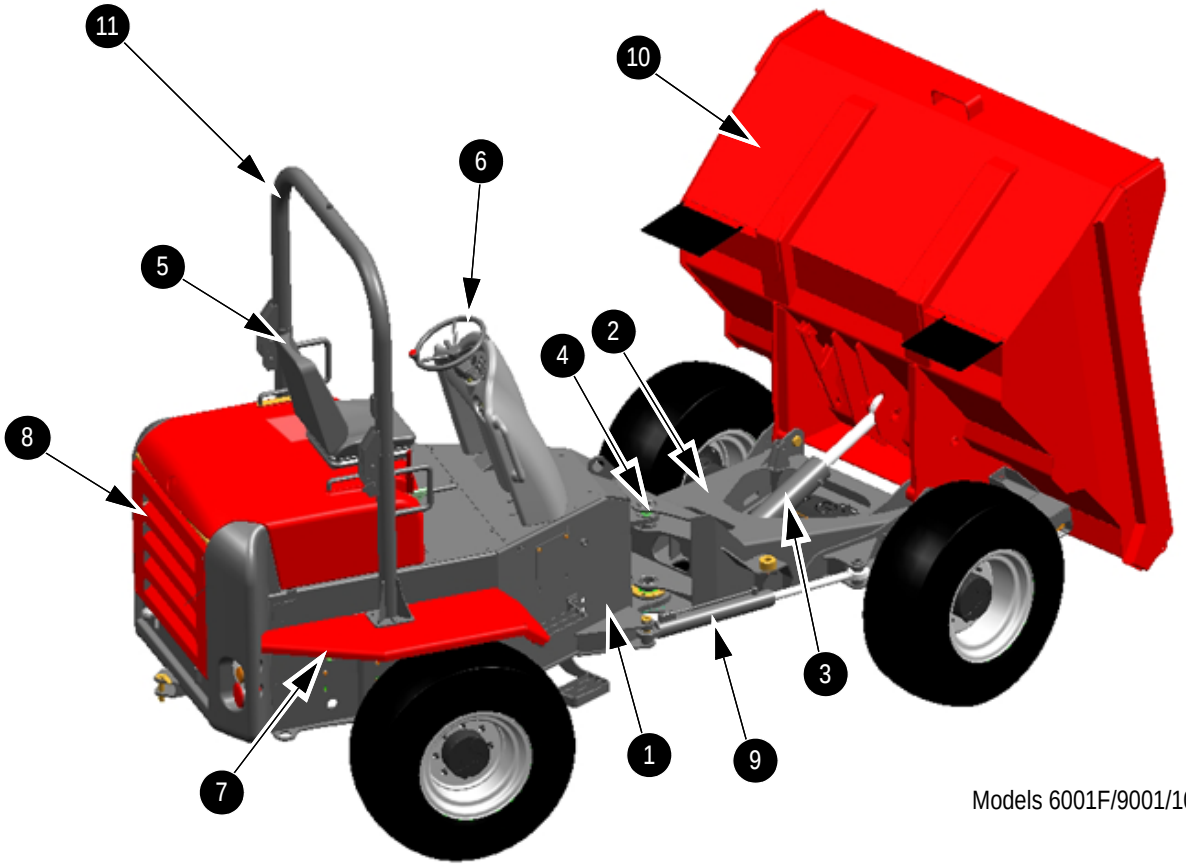
➥ Description of the effects or results of an activity

n. s. = not shown

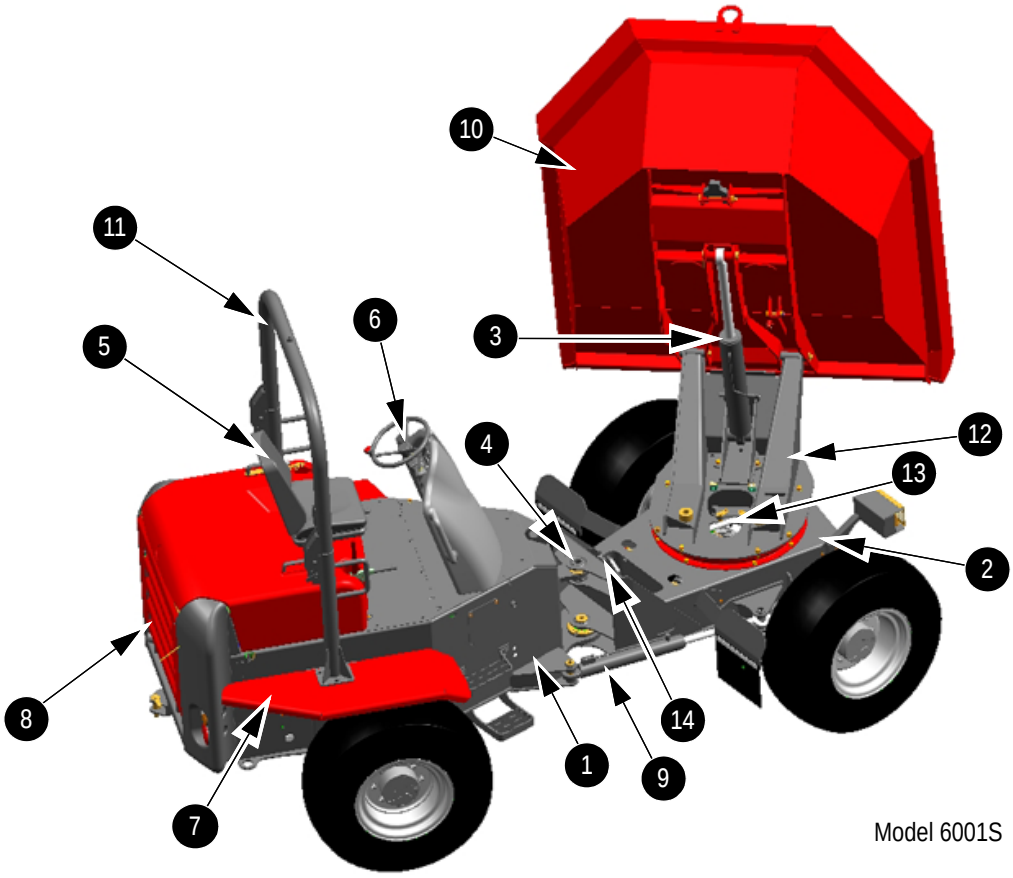
“Opt” = option

Stated whenever controls or other components of the machine are installed as an option.

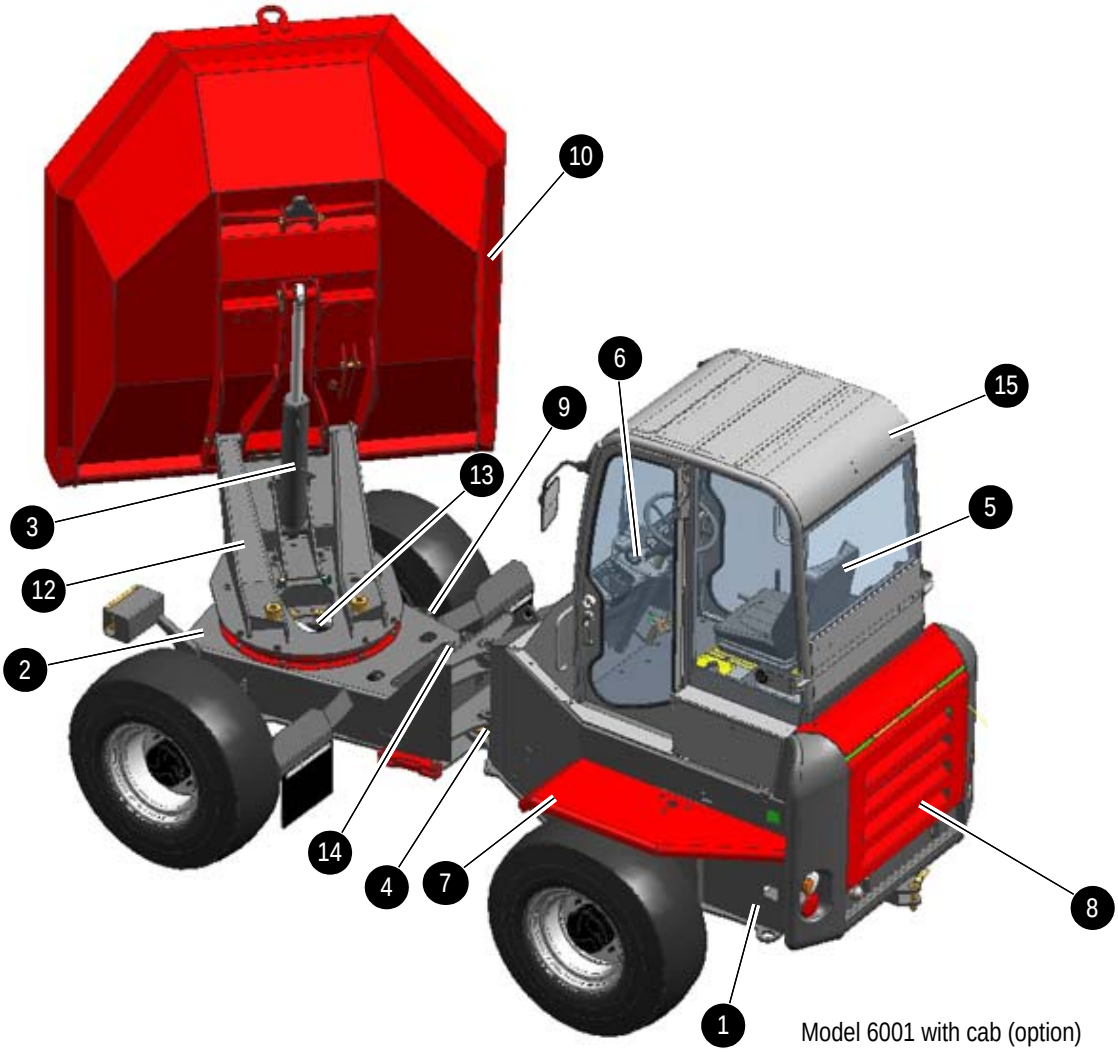
3.1 Description of components



Models 6001F/9001/10001



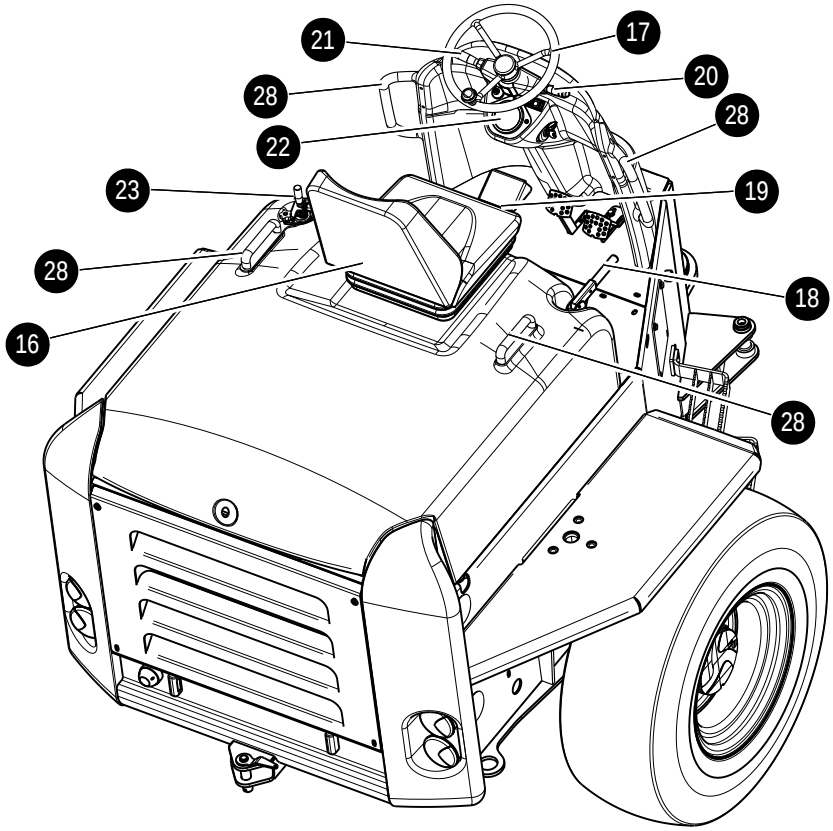
Model 6001S



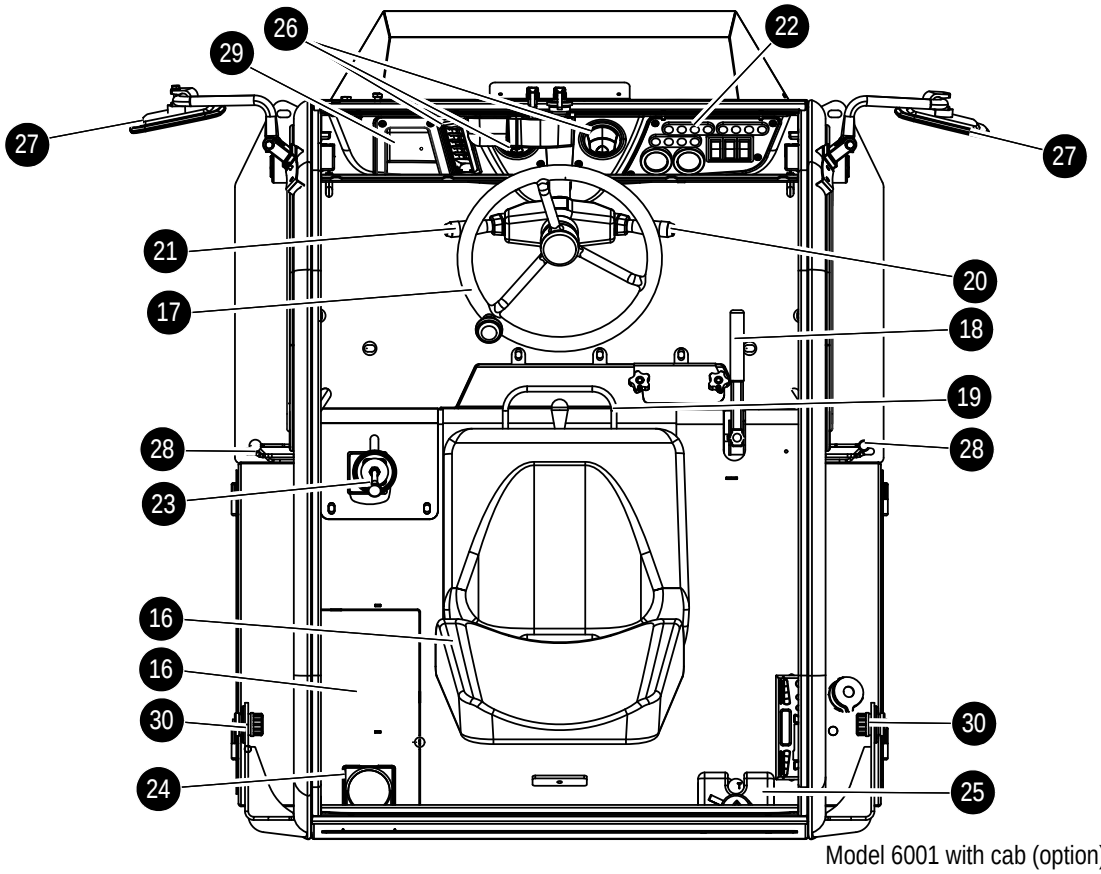
Model 6001 with cab (option)

Pos.	Description
1	Rear chassis
2	Front chassis
3	Tilt ram
4	King link
5	Seat
6	Control stand
7	Mudguard
8	Engine cover
9	Steering ram
10	Skip
11	Rollbar (machines without cab)
12	Swivelling console (option)
13	Slewing ram (option)
14	Slewing centre position (option)
15	Cab (option)

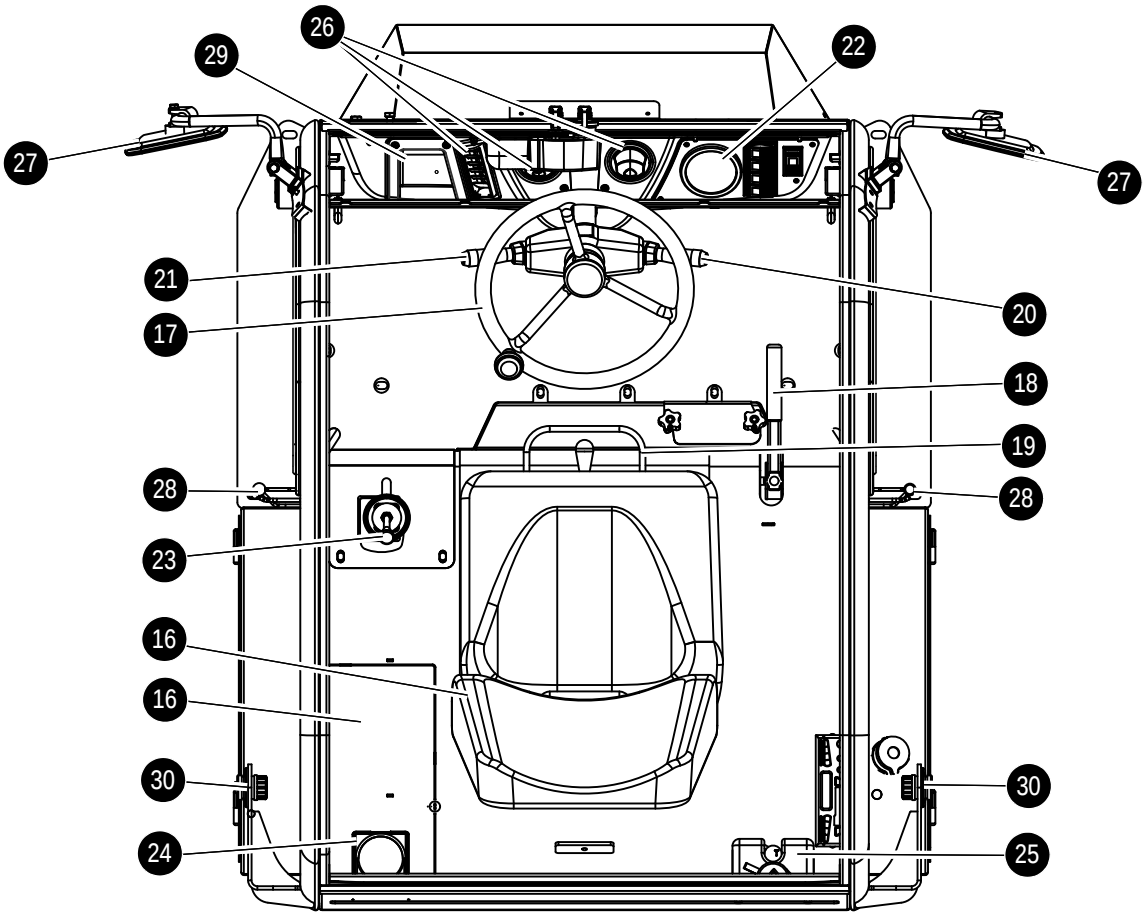
3.2 Control stand



Models 6001/9001/10001



Model 6001 with cab (option)

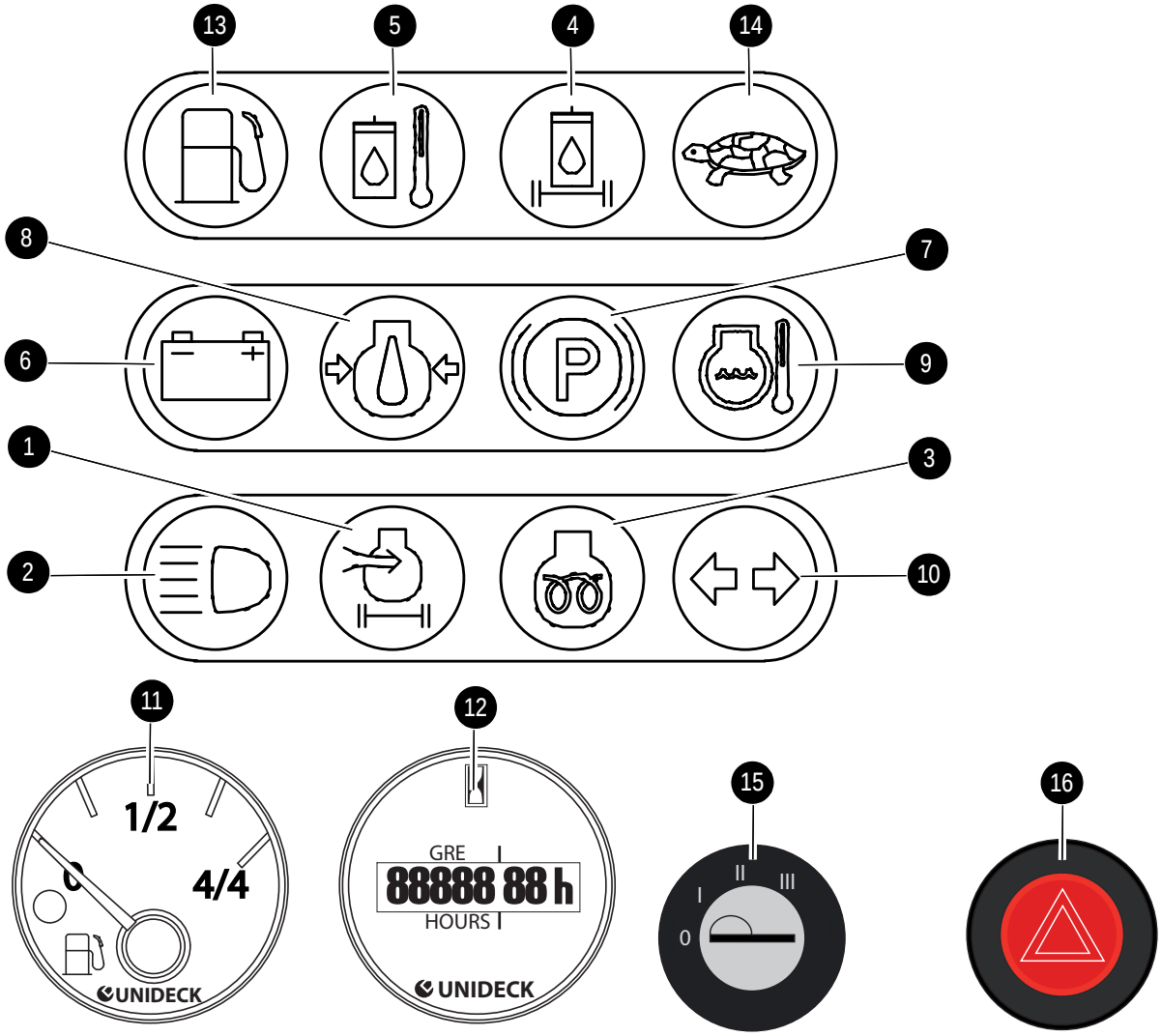


Model 6001 Hydrostat with cab (option)

Pos.	Description
16	Seat
17	Steering wheel
18	Parking brake
19	Lever for horizontal seat adjustment
20	Forwards-reverse control
21	Turn indicator – horn – lights
22	Indicator
23	Skip control lever
24	Drinks holder (machines with cab)
25	Washer fluid tank (machines with cab)
26	Air vent (machines with cab)
27	Rearview mirror (option)
28	Handle
29	Storage compartment (machines with cab)
30	Door arresters

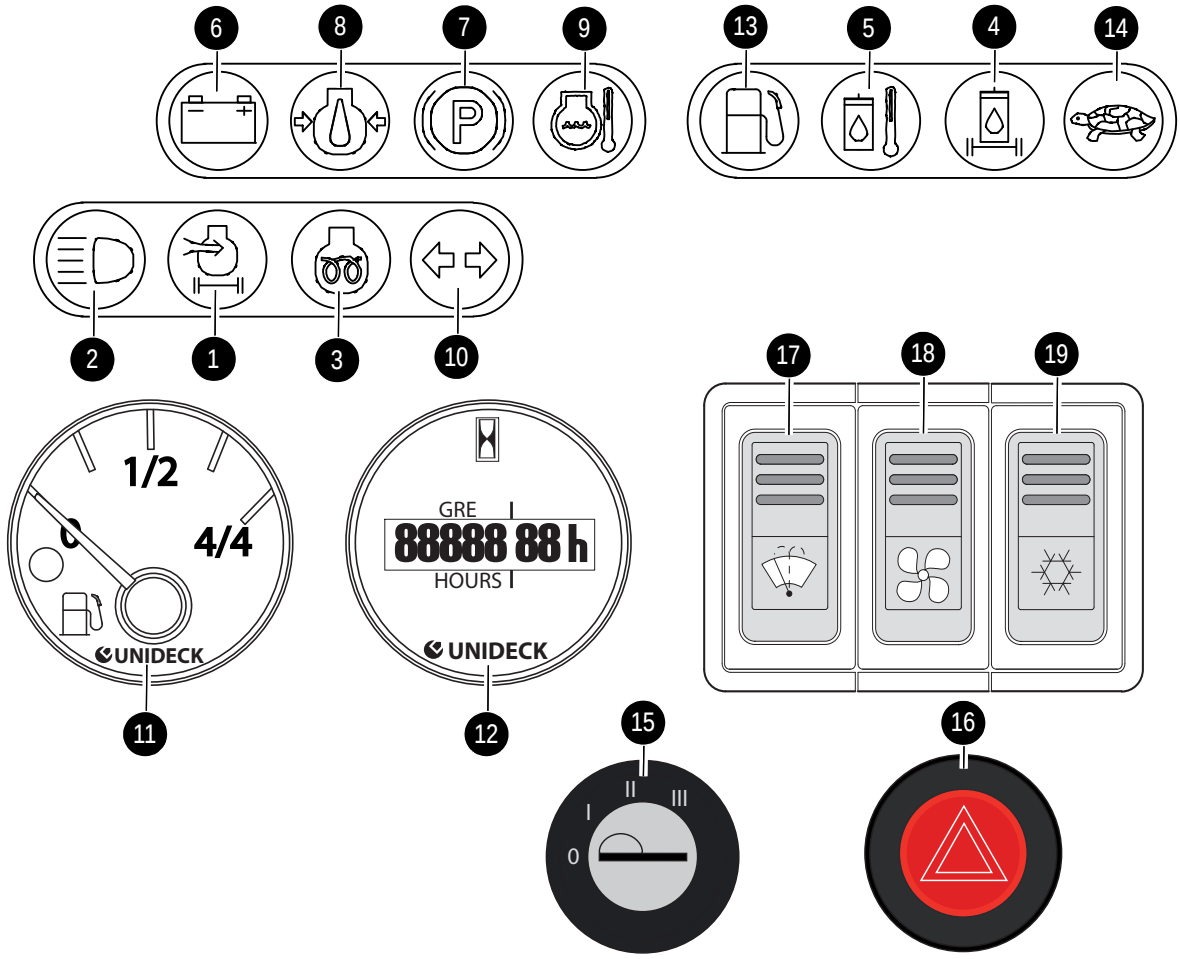
3.3 Instrument panel

Dumpers without cab



Pos.	Description
1	Telltale (red) – air filter
2	High beam telltale (blue)
3	Preheating telltale (yellow)
4	Telltale (red) – hydraulic oil filter
5	Converter oil temperature telltale (red)
6	Telltale (red) – alternator charge function
7	Parking brake telltale (red)
8	Telltale (red) – engine oil pressure
9	Telltale (red) – coolant temperature
10	Turn indicator telltale (green)
11	Fuel gauge
12	Hour meter
13	Low fuel level telltale (red)
14	Low speed (turtle) telltale (red)
15	Ignition lock
16	Hazard warning switch

Dumpers with cab (option) for 6001/9001 machines with serial numbers AB ..., and 10001 machines with serial numbers AA ...



Pos.	Description
1	Telltale (red) – air filter
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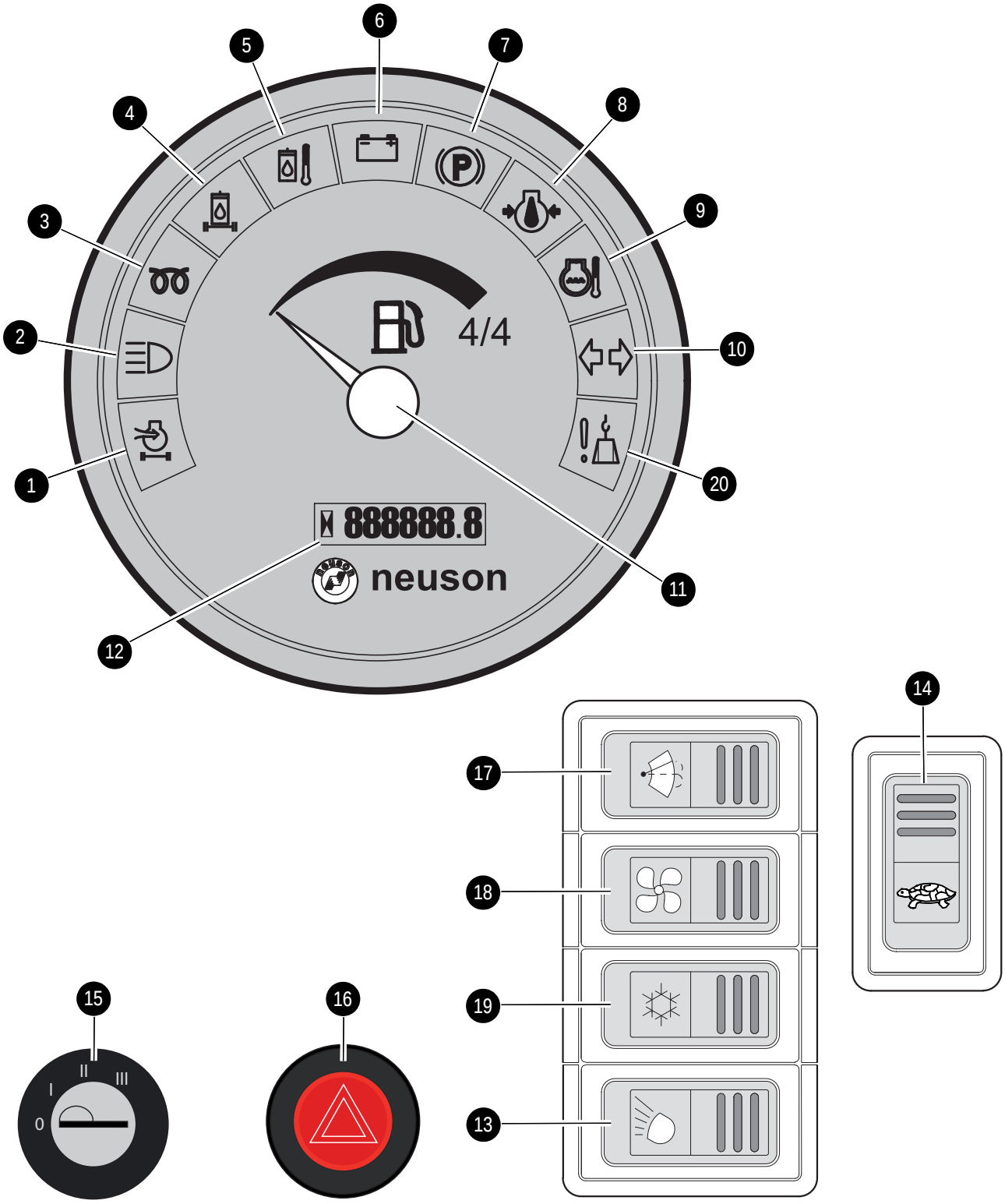
6	Telltale (red) – alternator charge function
7	Parking brake telltale (red)
8	Telltale (red) – engine oil pressure
9	Telltale (red) – coolant temperature
10	Turn indicator telltale (green)
11	Fuel gauge
12	Hour meter
13	Low fuel level telltale (red)
14	Low speed (turtle) telltale (red)
15	Ignition lock
16	Hazard warning switch
17	Wiper switch
18	Fan switch
19	Air conditioning switch (option)

Dumpers with cab (option) for 6001 machines with serial numbers AD ... , 9001/10001 machines with serial numbers AC ...



Pos.	Description
1	Telltale (red) – air filter
2	High beam telltale (blue)
3	Preheating telltale (yellow)
4	Telltale (red) – hydraulic oil filter
5	Converter oil temperature telltale (red)
6	Telltale (red) – alternator charge function
7	Parking brake telltale (red)
8	Telltale (red) – engine oil pressure
9	Telltale (red) – coolant temperature
10	Turn indicator telltale (green)
11	Fuel gauge
12	Hour meter
13	Working light switch
14	Low speed switch (turtle)
15	Ignition lock
16	Hazard warning switch
17	Wiper switch
18	Fan switch
19	Air conditioning switch (option)
20	Not assigned

3.4 Putting into operation

Safety instructions

- Use footholds and handles 28 to access and leave the machine
- Never use control elements as handles
- Never get on or off a moving machine! Never jump off the machine

Putting the machine into operation for the first time

Important information

- The machine may be put into operation by authorised staff only – *see chapter 2.5 Staff Qualifications and Basic Responsibilities* on page 2-14 and – *see chapter 2.6 Safety instructions Regarding Operation* on page 2-14 of this Operator's Manual.
- The staff must have read and understood this Operator's Manual before putting the machine into operation.
- The machine may only be used in technically perfect condition in accordance with its designated use and the instructions set forth in the Operator's Manual, and only by safety-conscious persons who are fully aware of the risks involved in operating the machine.
- Go through the “Start-up” checklist in the following chapter.

Running-in period

Handle the machine carefully during its first 50 operating hours.

The future performance and service life of the machine are heavily dependent on the observance of the following recommendations during the running-in period.

- Do not overload the machine, but at the same time do not drive too cautiously either, as the machine will never reach its proper operating temperature
- Do not run the engine at high revs for extended periods
- Increase the load gradually whilst varying the engine revs
- Strictly observe the maintenance schedules in the appendix – *see chapter 5.15 Maintenance plan (overview)* on page 5-35

Check lists

The checklists below are intended to assist you in checking and monitoring the machine before, during and after operation.

These checklists cannot claim to be exhaustive; they are merely intended as an aid for you in fulfilling your duties as a conscientious operator.

The checking and monitoring jobs listed below are described in greater detail in the following chapters.

If the answer to one of the following questions is NO, first rectify the cause of the fault before starting or continuing work.

Start-up checklist

Check the following points before putting the machine into operation or starting the engine:

No.	Question	✔
1	Enough fuel in the tank? (➠ *5-3*)	
2	Coolant level OK? (➠ *5-11*)	
3	Remove water in the diesel fuel prefilter (➠ *5-5*)	
4	Engine oil level OK? (➠ *5-8*)	
5	Oil level in hydraulic oil tank OK? (➠ *5-18*)	
7	V-belt condition and tension checked? (➠ *5-15*)	
8	Lubrication points greased? (➠ *5-38*)	
9	Check hydraulic hoses, connections and ram seals for leaks	
10	Firm position of battery terminals	
11	Tyres checked for cracks, cuts etc. ? (➠ *5-26*)	
12	Footholds clean?	
13	Engine cover locked with the buckle? (➠ *3-42*)	
14	Especially after cleaning, maintenance or repair work: ➥ Rags, tools and other loose objects removed?	
15	Correct seat position? (➠ *3-25*)	
16	Rollbar raised?	
17	Seat belt fastened? (➠ *3-26*)	

Operation checklist

After starting the engine and during operation, check and observe the following points:

No.	Question	✔
1	Anyone dangerously close to the machine?	
2	Telltales for engine oil pressure and alternator charge function gone out? (➠ *3-13*)	
3	Temperature indicators for engine coolant do not come on? (➠ *3-14*)	
4	Accelerator and brake pedals working correctly? (➠ *3-19*)	

Parking checklist

Check and observe the following points when parking the machine:

No.	Question	✔
1	Skip lowered?	
2	Drive lever in neutral position?	
3	Parking brake applied?	
4	Ignition key removed?	
When parking on public roads:		
5	Machine adequately secured?	
When parking on slopes:		
6	Machine additionally secured with chocks under the wheels to prevent it from rolling away?	

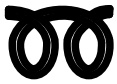
Telltales and warning lights: overview

1 Not assigned

2 High beam telltale (blue)

Comes on if high beam is on.

> **Caution!**
>
> Make sure no other road users are dazzled during road travel!
>
> ☞ *Switch on low beam*



3 Preheating telltale (yellow)

Comes on if the key in the preheating start switch is in position *2*.

A glow plug preheats the air in the combustion chamber of the engine when the key is in this position.

The telltale goes out as soon as preheating temperature is reached (15 – 20 sec)

4 Telltale (red) – hydraulic oil filter

Indicates inadmissibly high pressure in the hydraulic reflux line to the tank. In this case:

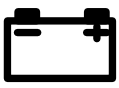
☞ *Have the hydraulic oil reflux filter checked and, if necessary, replaced by an authorised workshop*

☞ *The telltale can come on briefly if the hydraulic oil is cold, but goes out again once operating temperature is reached.*

5 Converter oil temperature telltale (red)

Indicates inadmissibly high torque converter temperature.

This telltale is not assigned on 6001 dumpers with serial numbers AD ...



6 Telltale (red) – alternator charge function

> **Caution!**
>
> The coolant pump no longer runs if the V-belt is faulty. Danger of engine overheating or breakdown!
> If telltale comes on with the engine running:
>
> ☞ *Switch off the engine immediately and*
>
> ☞ *Have the cause repaired by an authorised workshop*

The V-belt or the charging circuit of the alternator is faulty if the telltale comes on with the engine running. The battery is no longer charged.

7 Parking brake telltale (red)

Comes on if the parking brake is applied!

In this case:

☞ *Actuate lever 18 to release the parking brake*

8 Telltale (red) – engine oil pressure

Comes on if the engine oil pressure is too low. In this case:

☞ *Stop the machine*

☞ *Switch off the engine immediately and check the oil level*

The telltale comes on when the ignition is turned on and goes out as soon as the engine runs.

9 Telltale (red) – coolant temperature

Danger!

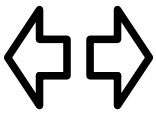
Never open the radiator and never drain coolant if the engine is warm since the cooling system is under high pressure –

Danger of burns!

☞ *Wait at least 10 minutes after switching off the engine!*

☞ *Wear protective gloves and clothing*

☞ *Open the cap to the first notch and release the pressure*



10 Turn indicator telltale (green)

Flashes if the turn indicators are switched on.

20 Not assigned

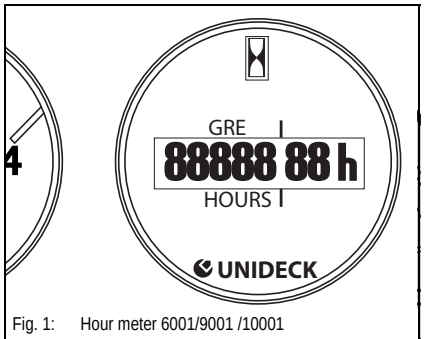


Fig. 1: Hour meter 6001/9001 /10001

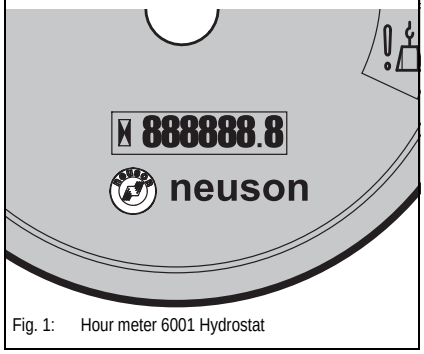


Fig. 1: Hour meter 6001 Hydrostat

12 Hour meter

Counts the engine service hours with the engine running.

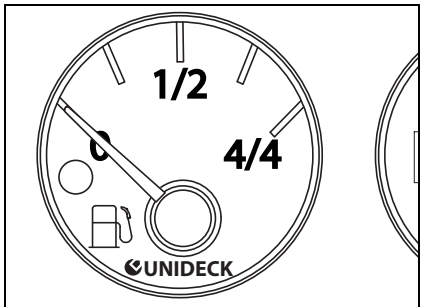


Fig. 2: Hour meter 6001/9001 /10001

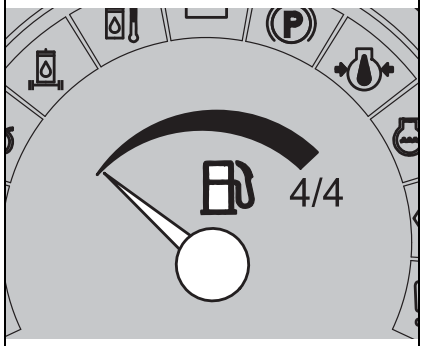


Fig. 2: Hour meter 6001 Hydrostat

11 Fuel level indicator

Refuel immediately if the fuel level indicator reaches minimum. Otherwise the fuel system must be bled if it is run dry.

3.5 Driving the dumper

Preheating start switch: overview

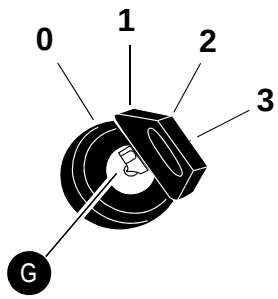


Fig. 3: Preheating start switch

Position	Function	Power consumer
0	Insert or remove the ignition key	None
1	ON/drive position	All functions are operational ➥ Telltales come on
2	Preheats the engine (10 – 15 seconds)	➥ Until the preheating telltale goes out
3	Starts the engine	➥ Starter is actuated ➥ Telltales must go out

Before starting the engine

☞ *Adjust your seat position – see Seat adjustment on page 3-25*

Important!

All controls must be within easy reach. You must be able to press the accelerator and brake pedals to their limit positions!

☞ *Fasten your seat belt – see Seat belt on page 3-26*

- Do not fasten your seat belt if the rollbar is not raised!

☞ *Check whether all levers and pedals are in neutral position*

☞ *Press the accelerator pedal to the centre position (between minimum and maximum) if the engine is cold*

Starting the engine: general

- The starter cannot be actuated if:
  - the engine is already running (start repeat interlock).
  - the drive lever is not in neutral position,
  - the parking brake is not applied.
- Do not run the starter for more than 10 seconds
- Wait about 1 minute so the battery can recover before trying again

Procedure

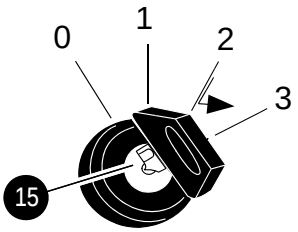


Fig. 4: Preheating start switch

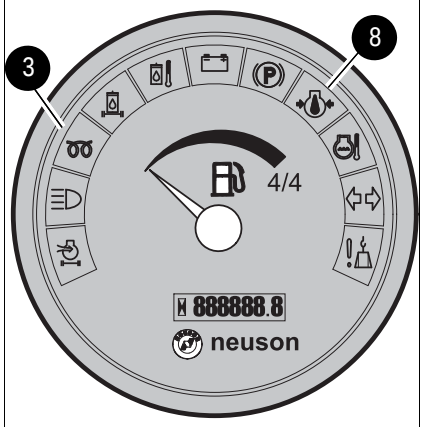


Fig. 5: Telltales

After you have completed the starting preparations:

☞ *Insert the ignition key in preheating start switch 15*

☞ *Turn the ignition key to position "1"*

☞ *Check whether the following telltales come on:*

➥ Telltale 8 for engine oil pressure

➥ Telltale 6 for alternator charge function

☞ *Replace defective telltales immediately*

☞ *Turn the ignition key to position "2" and hold it in this position until the preheating telltale goes out*

☞ *Turn the ignition key to position "3" and hold it in this position until the engine starts*

➥ If the engine does not start after 10 seconds

☞ Interrupt the start procedure and try again after 1 minute

➥ If the engine still does not start after the second try

☞ Contact a Neuson workshop for troubleshooting.

➥ As soon as the engine runs:

☞ *Release the ignition key*

When the engine runs smoothly (increased engine speed):

Important!

In general, a battery delivers less energy in cold conditions. Therefore make sure the battery is always well charged.

When the engine has started ...

☞ *Check whether all telltales have gone out:*

☞ *Let the engine warm up*

At cold temperatures:

☞ *Increase the engine revs slowly*

☞ *Do not run the engine at full load until it has reached its operating temperature*

Engine warm-up

Once it has started, let the engine warm up at slightly increased idling revs. Run the engine without load during the warm-up phase (drive lever in neutral position). During the warm-up phase, check for unusual noise, exhaust colour, leaks, malfunctions or damage. In case of malfunctions, damage or leaks, park and secure the machine, and find out the cause for the damage and have it repaired.

Jump-starting the engine (supply battery)

Safety instructions

- Never jump-start the engine if the battery of the machine is frozen – danger of explosion!

  ☞ Dispose of a frozen battery!
- The excavator must not touch the jump-starting vehicle when connected with jump leads – risk of sparking!
- The external power source must deliver 12 V; higher supply voltages will damage the electric system of the vehicles!
- Use only authorised jump leads which conform to the safety requirements and which are in perfect condition!
- The jump lead connected to the positive + terminal of the starting battery must never be brought into connection with electrically conductive vehicle parts
  – danger of short circuit!
- Route the jump leads so they cannot catch on rotating components in the engine compartment!

Procedure

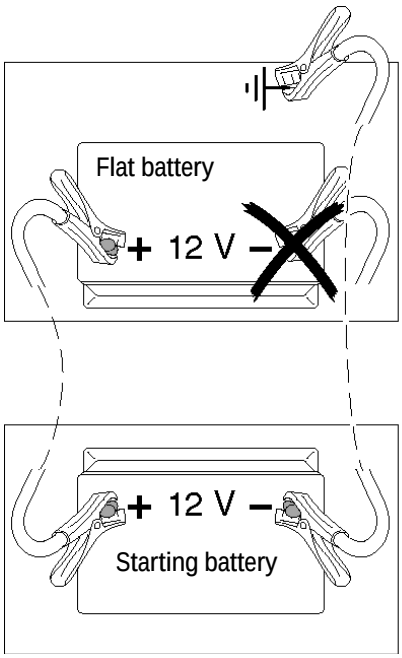


Fig. 6: Starting aid with jump leads

☞ *Drive the jump-starting vehicle close enough to the machine so that the jump leads can reach to connect the two batteries*

☞ *Let the engine of the jump-starting vehicle run*

☞ *First connect one end of the red jump lead (+) to the + terminal of the flat battery, then connect the other end to the + terminal of the starting battery*

☞ *Connect one end of the black jump lead (–) to the – terminal of the starting battery*

☞ *Connect the other end of the black jump lead (–) onto a solid metal component fimly mounted on the engine block or onto the engine block itself. Do not connect it to the negative terminal of the flat battery, as otherwise explosive gas emerging from the battery can ignite if sparks are formed!*

☞ *Start the engine of the machine with the flat battery*

Once the engine has started:

☞ *With the engine running, disconnect both jump leads in exactly the reverse order (first remove the – terminal, then the + terminal) – this prevents sparking in the vicinity of the battery!*

Special instructions for driving on public roads

The machine is subject to the:

- Applicable legal regulations of your country

Also observe the applicable regulations for accident prevention of your country.

Moving off

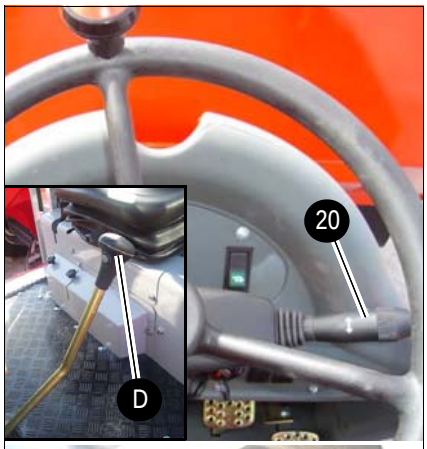


Fig. 7: Moving off with the 6001/9001/10001 dumpers

Fig. 7: Moving off with powershift (option) or with the 6001 Hydrostat

Danger!

Before pressing accelerator pedal *A*, move the drive lever to the correct position for the required driving direction!

Danger of accidents!

☞ *Slowly press the accelerator pedal to move off!*

Moving off with a standard machine:

Proceed as follows:

☞ *Press brake pedal B*

☞ *Select the driving direction with drive lever 20*

☞ Push forwards or pull backwards depending on the required driving direction.

☞ *Select the required driving speed (gear) with shift lever D*

☞ Select the gear with shift lever *D* (see *Fig. 7*)

☞ *Move off by pressing accelerator pedal A*

➥ Set the drive speed with accelerator pedal *A* and brake pedal *B*

Select another driving direction or another gear with drive lever *20*:

☞ *Stop the machine!*

☞ *Select the required driving direction with drive lever 20 or select the gear with shift lever D*

☞ *Move off by pressing accelerator pedal A*

Moving off with powershift (option) or with the 6001 Hydrostat (option):

Proceed as follows:

☞ *Press brake pedal B*

☞ *Select the driving direction with drive lever 20*

☞ Push forwards or pull backwards depending on the required driving direction.

☞ *Select the required driving speed (gear) with drive lever 20*

☞ Select the gear by pulling upwards or pushing downwards

☞ *Move off by pressing accelerator pedal A*

➥ Set the drive speed with accelerator pedal *A* and brake pedal *B*

Selecting another driving direction with drive lever *20*:

☞ *Stop the machine!*

☞ *Select the required driving direction with drive lever 20*

☞ *Move off by pressing accelerator pedal A*

Accelerator pedal

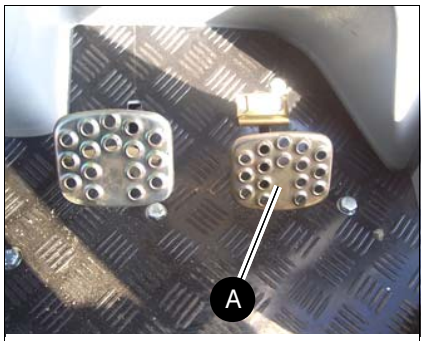


Fig. 8: Accelerator pedal

Accelerator pedal *A* sets the engine revs. During drive operation, the dumper is accelerated as revs are increased. During skip operation, the skip dumps in or out more rapidly as revs are increased.

Function	
Press the pedal	Engine speed rises
Reduce the pressure on the pedal	Engine speed is reduced
Release the pedal	Idling speed

The forwards or reverse drive speed depends on the position of accelerator pedal *A*.

Hydraulic brake

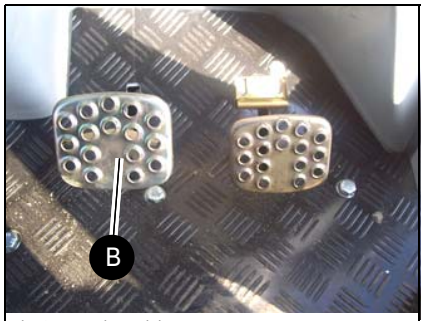


Fig. 9: Brake pedal

Hydrostatic drive.

Hydraulic service brake *B* with fully enclosed wet multdisc brakes in the front axle, self-adjusting, braking effect on all four wheels.

Important!

Use service brake *B* on slopes to slow down the machine as required.

Parking brake

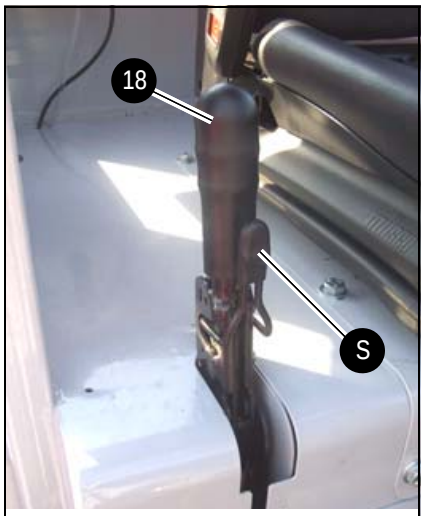


Fig. 10: Parking brake

Parking brake: mechanical disc brake with brake effect on the cardan shaft between the selector gearbox and the transfer gearbox!

Caution!

Reduced running performance, long standstill times and reduced loads cause the brake discs to corrode and dirt to accumulate on the brake linings. Slightly braking the machine (making sure no-one is hindered by the brake manoeuvre) every few kilometres in conditions of strong rain or on wet surfaces helps to dry the brake discs and linings with the heat created by braking. Cleaning with a high-pressure cleaner can cause water to penetrate into the brakes and to damage them.

Release the parking brake

☞ *Press lock lever S of parking brake lever 18*

☞ *Press parking brake lever 18 downwards to the front*

Apply the parking brake

☞ *Pull parking brake lever 18 up*

3.6 Hazard warning system

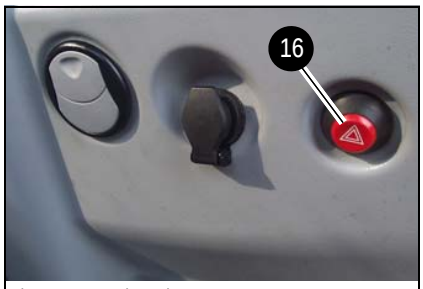


Fig. 11: Hazard warning system

Pressing switch 16 switches the hazard warning system on and off.

3.7 Low/high speed (6001 dumpers with serial numbers AD ...)

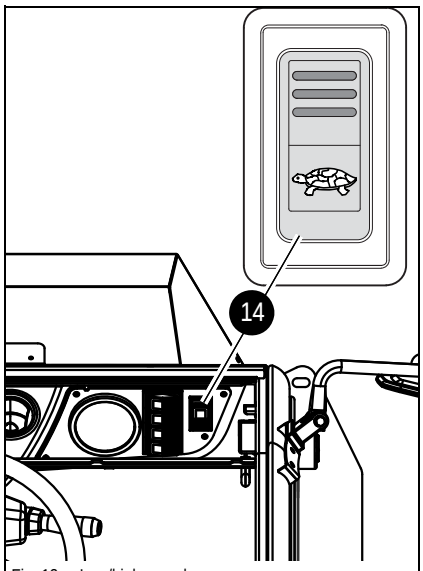


Fig. 12: Low/high speed

Use switch *14* to switch over between low and high speed.

The green telltale (turtle) in the switch comes on if low speed is enabled.

The green telltale in the switch goes out if high speed is enabled.

3.8 Driving on slopes

Follow these safety instructions carefully when driving on slopes, in order to avoid accidents.

Specific safety instructions

☞ *Dump in the skip when driving the machine.*

☞ *Also drive in low speed on slopes!*

☞ *When driving the machine, make sure you can stop safely any time if the machine starts to skid or if it becomes unstable.*

☞ *Avoid swivelling the skip downhill on slopes, otherwise the machine can lose its balance and tip over.*

➥ Always dump out the skip uphill.

☞ *Do not drive across slopes steeper than 25 % otherwise the machine can tip over laterally.*

☞ *Always drive straight ahead when driving uphill or downhill. Driving diagonally or at an angle to the slope is very dangerous.*

☞ *Drive slowly in meadows, on leaves or wet steel plates. The machine can slip even if the ground is level.*

Driving on slopes with a loaded skip

Proceed as follows to prevent the machine from tipping over or slipping sideways:

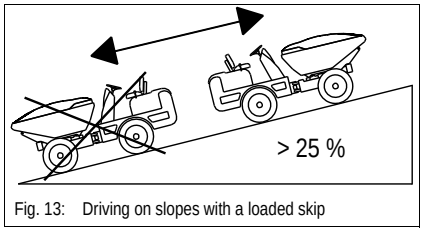


Fig. 13: Driving on slopes with a loaded skip

☞ *When driving on slopes (> 25 %) with a loaded skip, the skip must always face uphill since the heavier part of the machine – in this case the load in the skip – must face uphill to prevent the machine from tipping over.*

Driving on slopes with an empty skip

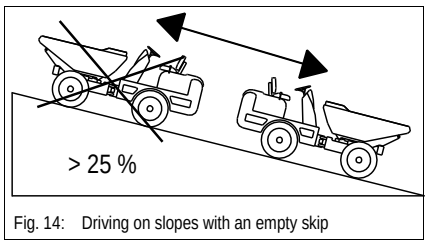


Fig. 14: Driving on slopes with an empty skip

☞ *When driving on slopes (> 25 %) with an empty skip, the skip must always face downhill since the heavier part of the machine – in this case the engine – must face uphill to prevent the machine from tipping over.*

Driving across slopes

☞ *Do not drive across slopes with lateral inclinations steeper than 25 %!*

☞ *When driving across slopes with lateral inclinations up to 25 %, dump out the skip only uphill for reasons of safety.*

Danger!

Pay special attention to the ground when driving across slopes –

Danger of accidents!

☞ *Driving across slopes up to 25 % steep is allowed only on firm ground.*

3.9 Parking the machine

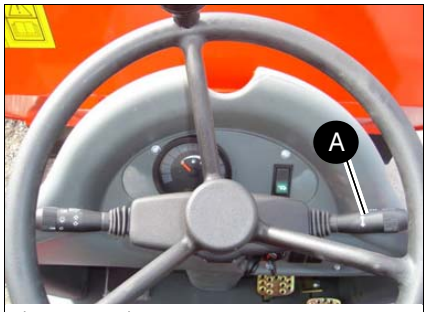


Fig. 15: Neutral

Danger!

Always park the machine on firm ground!

☞ *Select a level surface*

☞ *Stop the machine*

☞ *Move drive lever A to neutral position*

☞ *Lower the skip*

☞ *Apply the parking brake*

☞ *Switch off the ignition*

☞ *If parking the machine on a slope cannot be avoided, place wheel chocks under the wheels to make sure the machine will not roll away under its own weight.*

Caution!

Never switch off the engine under full load, otherwise it can be damaged due to overheating. Let the engine briefly run at idling speed with no load before you switch it off.

Important!

Secure the machine against unauthorised operation!

- Remove the key.

3.10 Loading the machine

Danger!

Always stay clear of the machine as you load it with an excavator or other machines –

Danger of personal injury!

Caution!

Incorrect loading causes severe damage on the machine!

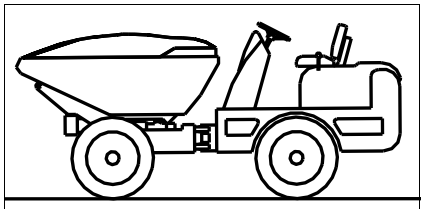


Fig. 16: Loading the machine

- Before loading:

☞ *Select the neutral position with the drive lever*

☞ *Lower the skip*

☞ *Apply the parking brake*

☞ *Stay clear of the control stand and of the danger area for reasons of safety*

- Once loading is over:

☞ *Remove dirt, debris, dust etc. from the control elements*

☞ *Remove loose material*

3.11 Seat adjustment

Danger!

Never change the seat position when driving or working – *see Before starting the engine* on page 3-16

Danger of accidents!

☞ *Adjust the seat before moving the machine*

Weight adjustment

Important!

Adjust the seat suspension correctly to ensure a high level of ride comfort.

Fig. 17: Weight adjustment

To adjust to a higher weight:

☞ *Turn the adjusting wheel to the right.*

To adjust to a lower weight:

☞ *Turn the adjusting wheel to the left.*

The specified weight is indicated by the yellow pointer next to the adjusting wheel.

Horizontal adjustment

Fig. 18: Horizontal seat adjustment

☞ *Sit down on the seat*

☞ *Pull lever 19 upwards and at the same time*

☞ *Move the seat forwards or backwards.*

Backrest adjustment

Fig. 19: Backrest adjustment

☞ *Pull lever R up and at the same time press against the backrest to move it to the required position.*

☞ *Let lever R lock into place.*

3.12 Seat belt

Danger!

Do not drive or work with the seat belt unbuckled –

Danger of personal injury!

☞ *Buckle up before moving or working with the machine!*

- Always fasten the seat belt if the rollbar is raised!
- Do not use the seat belt if the rollbar is lowered.
- Seat belt must not be twisted!
- The seat belt must run over the hips – and not over the stomach!
- Do not place the seat belt over hard, edged or fragile items (tools, meter rule, glasses, pen) carried inside your clothes!
- Never buckle up 2 persons (children!) with one seat belt!
- Check seat belts regularly. Have damaged parts immediately replaced by an authorised workshop!
- Always keep the seat belt clean, as coarse dirt can impair proper functioning!
- Seat belt buckle must not be obstructed by foreign bodies (paper or similar); otherwise the buckle latch cannot lock into place!

After an accident the belt strap is stretched and no longer serviceable. In an accident, the seat belt

Will not provide adequate protection!

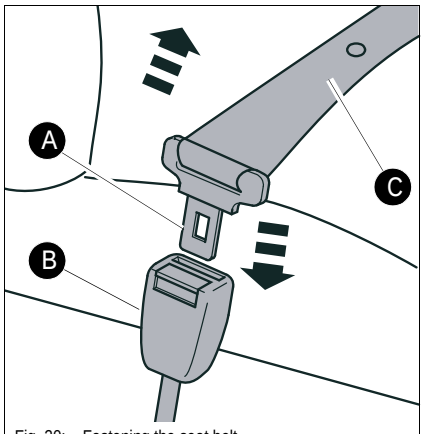


Fig. 20: Fastening the seat belt

Seat belt C is for the driver's safety during work on construction sites and during road travel.

Fastening the seat belt:

☞ *Fasten seat belt C as follows before moving the machine:*

- Hold belt on buckle latch A and run it slowly and steadily over the hips to buckle B
- Insert buckle latch A into buckle *B* with an audible click (pull test)

Important!

Fasten the seat belt only if the rollbar is raised.

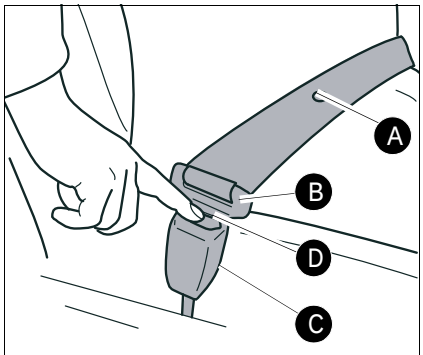


Fig. 21: Unfastening the seat belt

Unfastening the seat belt:

☞ *Unfasten seat belt A as follows:*

- Hold the seat belt
- Press red button D on buckle C

  ➥Latch B is released from buckle C by spring pressure
- Slowly return the seat belt to the retractor

3.13 Light system

Road travel lights

Fig. 22: Road travel lights

Switch on the light system when driving on public roads and places, with rotary switch 21.

Road travel lights		
ON	☞ *Turn rotary switch 21 to the 1st position*	➥ Clearance lights switched ON
ON	☞ *Turn rotary switch 21 to the 2nd position*	➥ Low beam switched ON
OFF	☞ *Turn rotary switch 21 to the front*	➥ Lights switched OFF

Position 1:

➥ The clearance lights are switched on at the front and rear of the machine.

Position 2:

➥ Low beam is switched ON.

Multifunctional lever

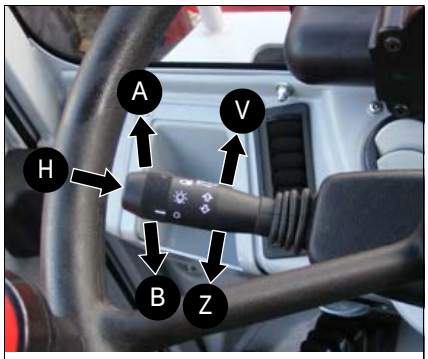


Fig. 23: Multifunctional lever

The horn, the turn indicators and high beam are actuated with lever 21on the steering wheel.

Light switch		
Turn indicators (left)	☞ *Pull lever* 21 *backwards Z*	➥ Left-hand side turn indicators flash
Turn indicators (right)	☞ *Push lever* 21 *forwards V*	➥ Right-hand side turn indicators flash
Headlight flasher	☞ *Pull lever* 21 *upwards A*	➥ High beam is ON as long as the lever is pulled upwards
High beam (ON)	☞ *Push lever* 21 down B	➥ High beam (ON)
Horn	☞ *Push lever* 21 *towards the steering column E*	➥ The horn sounds

Interior light

Fig. 24: Interior light

Interior light	
ON	☞ *Press switch to the left or right*
OFF	☞ *Move switch to centre position*

Rotating beacon (option)

Fig. 25: Rotating beacon

The rotating beacon (option) is switched on automatically as soon as ignition is switched on.

Important!

Observe the legal regulations of your country for operating the rotating beacon.

Working light

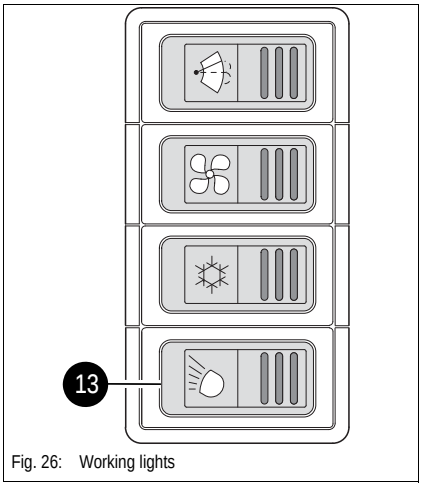


Fig. 26: Working lights

Working light		
ON	☞ *Press switch* 13 forwards to the 1st position	➥ Front working light ON
ON	☞ *Press switch* 13 forwards to the 2nd position	➥ Front and rear working lights ON
OFF	☞ *Press switch* 13 fully backwards	➥ Lights switched OFF

3.14 Cab heating and ventilation

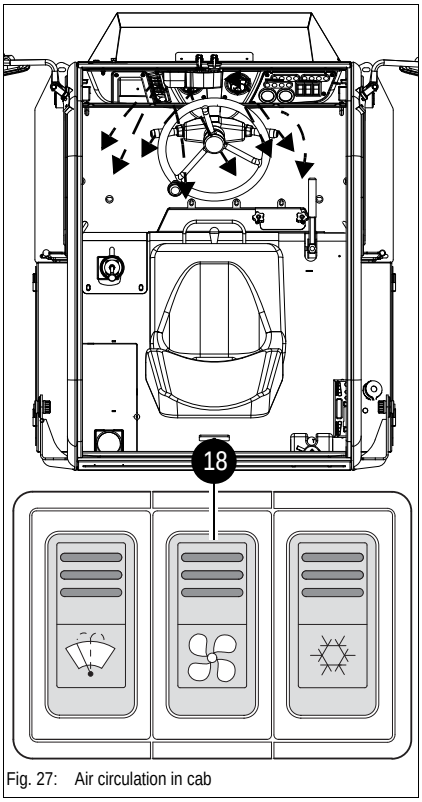


Fig. 27: Air circulation in cab

Important!

The cab is fitted with five air nozzles. Each nozzle can be closed and directed separately. In order to achieve best results for defrosting the front window, direct the air nozzles to the front window.

- Open or close the nozzles as required to vent or heat the cab.
- Do not place flammable or explosive material or objects near the nozzles.
- Air the cab from time to time

Ventilation (fresh air)		
1st speed	☞ *Press switch* 18 *forwards one step*	➥ Low fan speed
2nd speed	☞ *Press switch* 18 *forwards two steps*	➥ High fan speed
OFF	☞ *Press switch* 18 *to the rear*	➥ Fan OFF

3.15 Air conditioning (option)

In order to achieve best cooling results:

☞ *Open the nozzles and direct them towards the headliner – see Cab heating and ventilation on page 3-29.*

➥ This setting ensures good air circulation in the cab as the cool air flows to the cab floor.

☞ *Keep all windows and doors closed.*

☞ *Air the cab from time to time.*

Important!

Open the windows and the doors to allow hot air to escape. Then switch on air conditioning, and close the windows and the doors. Keep all windows and doors closed to achieve best cooling results.

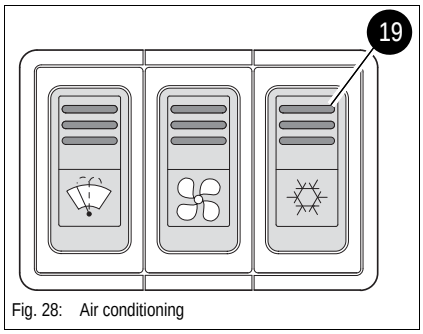


Fig. 28: Air conditioning

Air conditioning		
OFF	☞ *Press switch* 19 *up*	Fan OFF
1st speed	☞ *Press switch* 19 *(ventilation) 1 step down*	➥ Low fan speed
2nd speed	☞ *Press switch* 19 *(ventilation) 2 steps down*	➥ High fan speed

Important!

Let the air conditioning system run once a month for at least 10 – 15 minutes, to ensure the system's full capability and the durability of the seals – *see Air conditioning (option)* on page 3-30.

3.16 Washer system

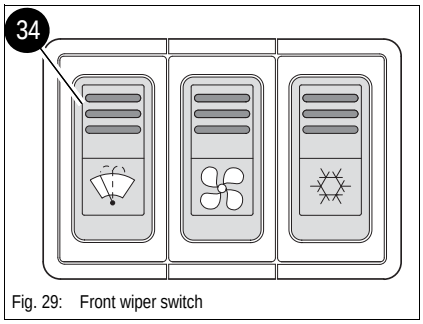


Fig. 29: Front wiper switch

Front window wiper		
OFF	☞ *Press switch* 34 *up*	➥ Front wiper returns to base position
1st speed	☞ *Press switch* 34 down to the 1st position	➥ Front wiper is on
2nd speed	☞ *Press switch* 34 down to the 2nd position	➥ Pump sprays washer water on the window

Important!

Do not actuate the washer system if the tank is empty, otherwise this can damage the electric pump.

Tank for washer system

Fig. 30: Tank for washer system

The tank is located at the rear right of the cab

Important!

Fill with clean tap water only!
Add a suitable cleaning agent if required.
In winter: add antifreeze for washer systems to the water.
Refer to the antifreeze instructions for further information on concentrations.
The rubber diaphragm in the non-return valve in the housing conglutinates if stored in a dry condition over a longer period of time. In order to restore this valve's function, moisten this non-return valve, dip it briefly in water and then blow air through it.

3.17 Doors

Danger!

Close the doors when driving.

Danger of accidents!

☞ *Close the doors before moving the machine!*

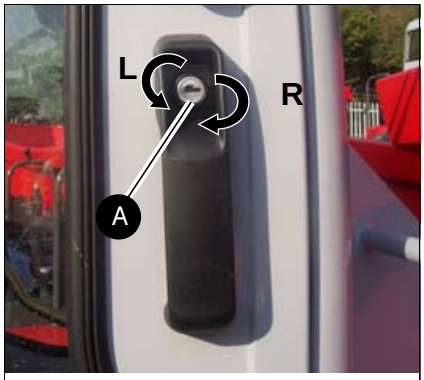


Fig. 31: Outside door openers and locks

Opening the doors from the outside:

☞ *Press door locks A*

Locking the doors:

☞ *Turn the key in door locks A to the **left** (L)*

☞ The doors are locked

Unlocking the doors

☞ *Turn the key in door locks A to the **right** (R)*

☞ The doors are unlocked

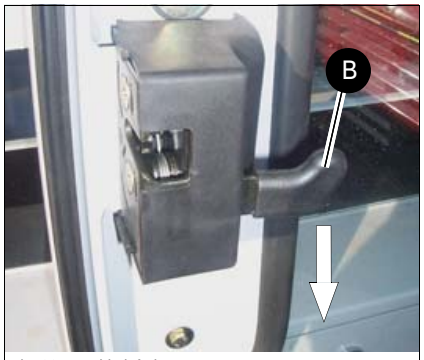


Fig. 32: Inside left door opener

Opening the doors from the inside

☞ *Press the lever on the inside on door locks B down*

Door arresters

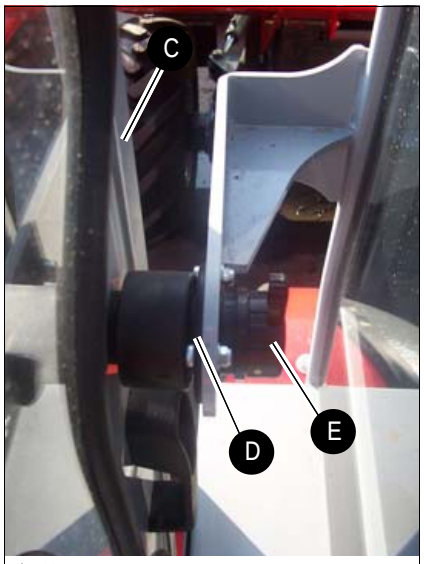


Fig. 33: Door arresters

Locking the doors in the arresters:

☞ *Press doors C against brackets D* of the arresters until they engage with an audible click.

Releasing the door:

☞ *Turn twist knob E to the right*

➥ The doors are released

3.18 Working with the machine

General safety instructions

- Never drive up to the edge of a pit from outside – danger of cave-in!
- Do not drive underneath projecting earth. Stones or the projecting earth can fall onto the machine.
- When working on roofs or similar structures, check the resistance and the structure itself before starting work. The building can collapse, causing severe injury and damage.
- Do not place the machine directly underneath the workplace during demolition, otherwise demolished parts can fall onto the machine or the building can collapse, causing severe injury or damage.
- Operation of the machine by unauthorised staff is prohibited!
- The hydraulic system of the machine is still pressurised even when the engine is not running! Release the pressure in the sections of the system and hydraulic lines which are to be opened before starting setup or repair work.
- Before dumping out the skip next to an excavation, secure the machine with suitable wheel chocks or other auxiliary means.
- Always watch the material as you dump out the skip: make sure the material is dumped out evenly and does not remain stuck in the skip, otherwise the machine could tip over
- Do not dump the load when working on sloping ground.
- No transporting of persons, animals etc. in the skip.
- Driving with a dumped-out skip is prohibited!
- Always carry out precise and smooth control movements, do not carry out abrupt movements.
- Do get on or off the machine when it is moving.
- Avoid dangerous work conditions on the work site, do not work in severe weather and make sure no-one is at risk.
- Always fasten your seat belt when working with machines with rollover protection structures.

3.19 Front skip operation

Caution!

Driving with a dumped-out skip is prohibited!

The working speed of the skip is set with the travel of the control lever and with the accelerator pedal.

When dumping material into a pit, a firm resistance (beam) is required for propping the front wheels!

☞ *Never drive up to a pit only with the brakes!*

Lowering the skip too rapidly and knocking it against the chassis can cause damage and the dumper to tip over!

Fig. 34: Front skip operation

Position	Lever	Function
A	☞ *Lever pushed forwards*	➥ Dumping out the skip
B	☞ *Lever pulled backwards*	➥ Lower the skip

3.20 Swivel skip operation

Fig. 35: Swivel skip operation

Caution!

Driving with a dumped-out skip is prohibited!

Material that sticks in the skip may be dumped out only to the front in the straight-ahead position of the dumper.

The working speed of the skip is set with the travel of the control lever and with the accelerator pedal.

When dumping material into a pit, a firm resistance (beam) is required for propping the front wheels!

☞ *Never drive up to a pit only with the brakes!*

Lowering the skip too rapidly and knocking it against the chassis can cause damage and the dumper to tip over!

Set the skip to the required position before dumping out the skip.

Position	Lever	Function
A	☞ *Lever forwards*	➥ Dumping out the skip
B	☞ *Lever pulled backwards*	➥ Lower the skip
C	☞ *Lever to the left*	➥ Skip swivels to the left
D	☞ *Lever to the right*	➥ Skip swivels to the right

Swivelling the skip:

Before swivelling the skip, press the lever forwards to raise it until lock cog T is raised from lock recess K.

The skip can then be swivelled.

Normal position of the skip is the position in which the skip is in centre position and in which lock cog T engages in lock recess K.

Important!

Do not lock the engine cover during machine operation!
The emergency switch is located underneath the engine cover!

3.6 Rollbar

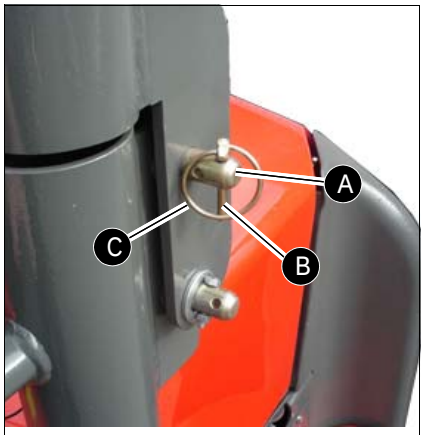


Fig. 4: Rollbar

Danger!

The rollbar is very heavy, folding it up or down is very

Dangerous!

☞ *Two persons are required for raising or lowering the rollbar!*

Caution!

Do not fasten the seat belt when driving with the rollbar lowered!

Folding up the rollbar:

☞ *Place the machine on level ground*
☞ *Raise the rollbar*
☞ *Secure the rollbar with lock pins A*
☞ *Secure lock pins A with split pins B*
☞ *Fold down ring C*
➥ Split pin B cannot fall out

Lowering the rollbar:

☞ *Place the machine on level ground*
☞ *Fold up ring C*
☞ *Remove split pins B from lock pins A*
☞ *Remove lock pins A*
☞ *Slowly and carefully lower the rollbar with the help of a second person*

3.7 Towing

Caution!

The dumper is equipped with towing gear at the rear and a towing lug at the front. Only this equipment may be used for towing.
Open the high-pressure circuit before towing the machine!

Opening the high-pressure circuit

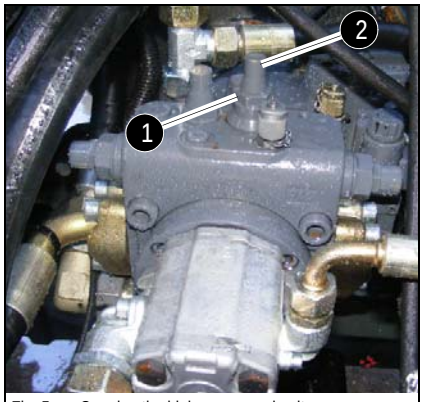


Fig. 5: Opening the high-pressure circuit

There are two HP pressure limiting valves on the pump under the floor panel, one on the upper left and the other on lower left.

Proceed as follows:

☞ *Slacken locknut w/f 14 (part 2) and unscrew it to the end of the screw*

☞ *Screw in the screw with allen key w/f 4 (part 1) until you can feel a firmer resistance.*

☞ *Then screw in a further half revolution*

Caution!

Screwing in any further damages the valve!

☞ *Retighten the locknut*

☞ *You can now slowly tow the machine (max. 1 kph) over a short distance (max. 1 km)*

☞ *Then put the valves back into operation again! Proceed in the reverse order to do this (unscrew the screw as far as it will go).*

3.8 Centre pivot prop

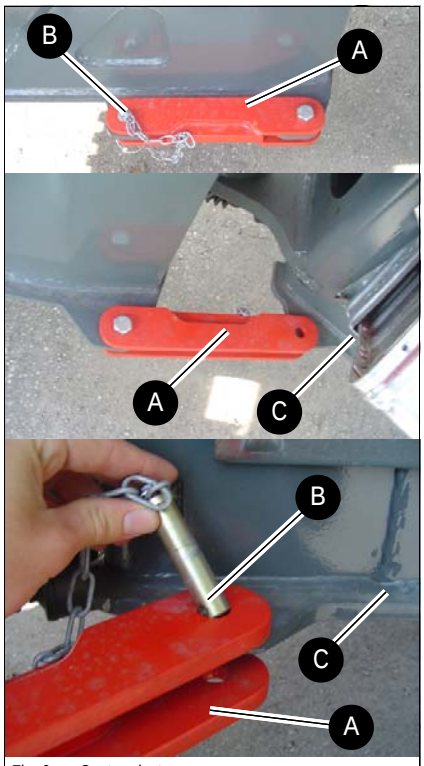


Fig. 6: Centre pivot prop

Danger!

Secure the steering ram with the red centre pivot prop when crane handling the machine.

The centre pivot prop secures the steering ram to prevent steering movements (via the articulated joint) when crane handling the dumper.

Procedure to follow:

☞ *Remove the spring plug from pin B*

☞ *Rotate centre pivot prop A towards rear chassis C*

☞ *Secure centre pivot prop A with the spring plug on pin B*

Important!

Before putting the machine into operation again, mount the centre pivot prop back onto the front chassis again by means of pin B.

3.9 Locking the control lever (machines without cab)

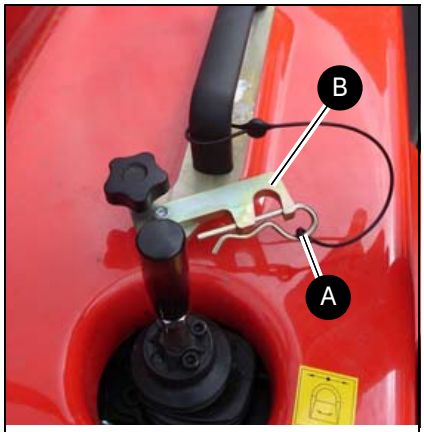


Fig. 7: Locking the control lever

Caution!

Lock the control lever for the skip during road travel!

☞ *This avoids unintentional actuation of the skip.*

Lock as follows:

☞ *Remove split pin A from lock B*

☞ *Fold lock B to the front*

☞ *Insert split pin A in lock B*

Unlock in the reverse order!

3.10 Crane handling the machine

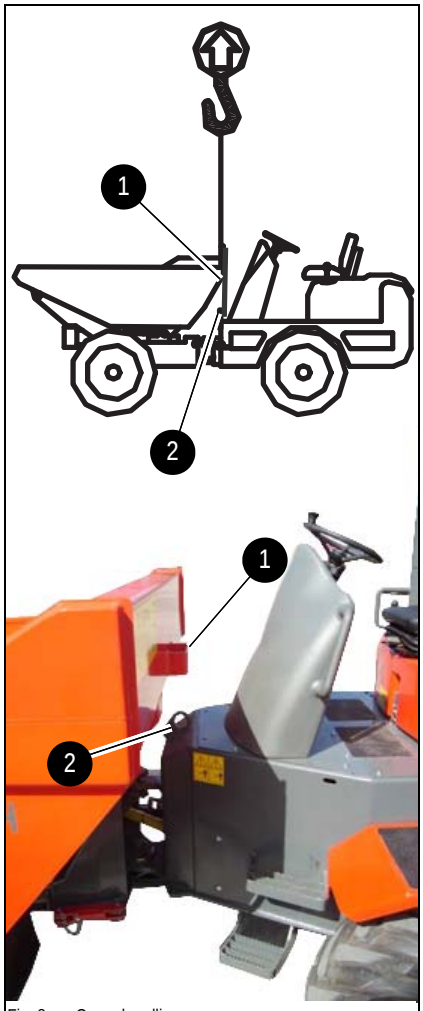


Fig. 8: Crane handling

Safety instructions

- The crane and the lifting gear must have suitable dimensions.
- Crane handling the machine requires suitable lifting gear.
- Secure the machine against unintentional movement!

Danger!

Incorrect crane handling of the machine –

Danger of accidents!

☞ *Make sure no-one is near the machine!*

☞ *Have loads fastened and crane operators instructed by experienced persons only! The person giving the instructions to the crane operator must be within sight or sound of him!*

☞ *Make sure the crane and the lifting gear (cables, chains) have sufficient lifting capacity!*

☞ *Raise the machine only if the skip is empty!*

☞ *Stay clear of suspended loads!*

☞ *It is essential that you read the safety instructions at the beginning of this chapter and follow any other safety instructions relevant in your country!*

☞ *Load the machine as follows:*

- Empty the skip
- Lower the skip
- Stop and park the machine
- Locking the control lever – *see chapter 3.9 Locking the control lever (machines without cab)* on page 3-38
- The rollbar can be lowered to reduce the transport height.
- Put the centre pivot prop in place
- Use suitable lifting gear, chains etc.

☞ Make the lifting gear pass through bracket 1 on the edge of the skip and fasten it on eye hook 2 on the chassis!

- Slowly raise the machine

3.11 Loading and transporting the machine

Safety instructions

- The transport vehicle must be of adequate size – refer to *Chapter 6 "Specifications"* for the machine's dimensions and weights!
- Remove any mud, snow or ice from the tyres so that the machine can be safely driven onto the ramps
- Secure the machine against unintentional movement – *see Parking the machine* on page 3-23!

Danger!

The machine must be loaded and transported properly –

Danger of accidents!

☞ *It is essential that you read the safety instructions at the beginning of this chapter and follow any other safety instructions relevant in your country!*

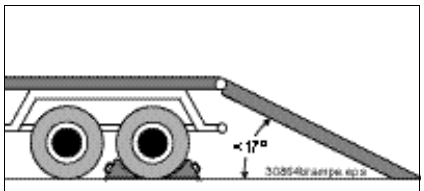


Fig. 9: Access ramps

☞ *Load as follows:*

- Secure the transport vehicle with chocks to prevent it from rolling
- Place the access ramps at the smallest possible angle. Make sure the grade does not exceed 17° (30 %). Use access ramps with an antiskid surface only.
- Make sure the loading area is clear and access to it is not obstructed – e.g. by superstructures
- Make sure the ramps and the tyres of the dumper are free of oil, grease and ice
- Start the engine of the dumper
- Lower the skip of the dumper
- Carefully reverse the dumper onto the middle of the transport vehicle
- Stop and park the machine

Important!

The manufacturer's warranty shall not apply to accidents or damage caused by loading or transporting the excavator.

3.12 Strapping down the machine

Fig. 10: Strapping down the machine

Danger!

The machine must be loaded and transported properly –

Danger of accidents!

☞ *It is essential that you read the safety instructions at the beginning of this chapter and follow any other safety instructions relevant in your country!*

- Secure the wheels of the dumper at the front, rear and at the sides
- Firmly strap down the dumper at the eye hooks H onto the platform, with belts or chains of adequate size
- Make sure the driver of the transport vehicle knows the overall height, width and weight of his vehicle (including the dumper) before moving off, and the legal transport regulations of the country or countries in which transport will take place!

3.13 Battery master switch

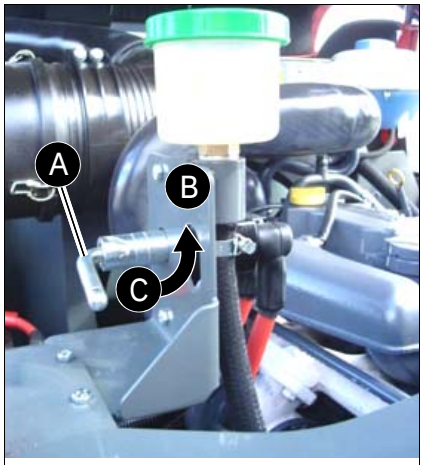


Fig. 11: Battery master switch (6001 Hydrostat)

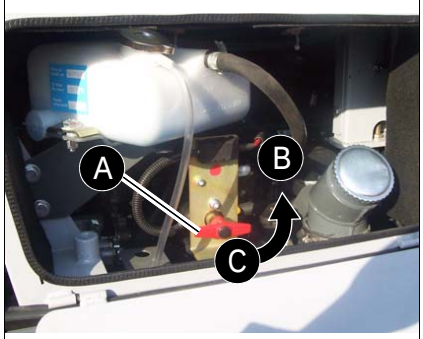


Fig. 11: Battery master switch (6001/9001/10001 with cab)

The battery master switch is located under the engine cover. The battery master switch is located behind the right-hand side maintenance flap on machines equipped with an optional cab.

Important!

Do not disconnect the battery while the engine is running.

Important!

Power supply is interrupted directly after the battery, by means of a key.

- *Interrupt the power supply before working on the electric system!*

Interrupting power supply:

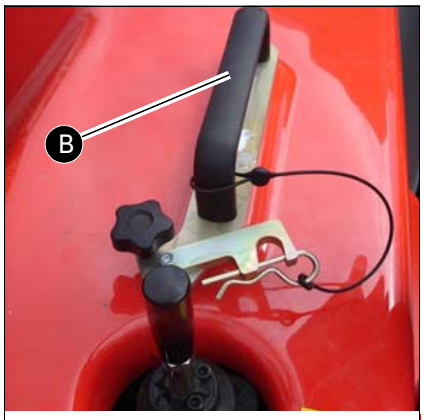
☞ *Turn key A of the battery master switch to position B and remove it*

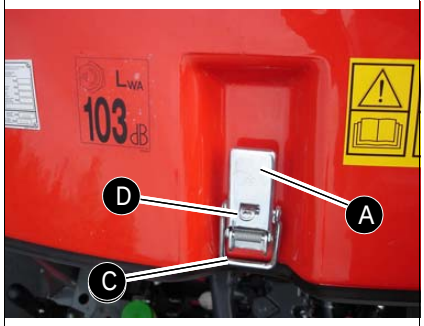
Switching on power supply:

☞ *Insert key A in the battery master switch*

☞ *Turn the key down to the notched position C*

3.5 Engine cover (machines without cab)





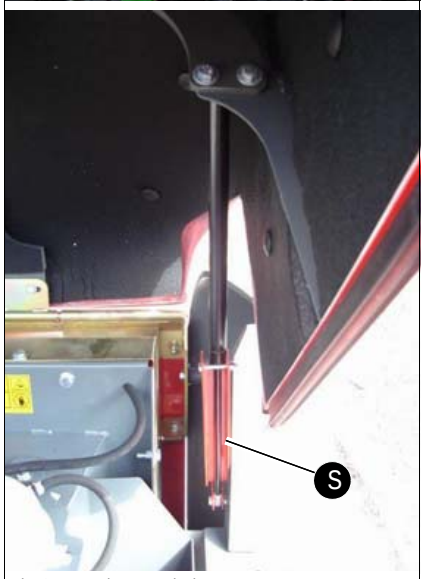


Fig. 3: Engine cover lock

Opening:

☞ *Stop the machine*

☞ *Let the engine cool down*

☞ *Press buckle A of the engine cover downwards and pull shackle C to the front*

☞ *Pull the engine cover upwards with handles B until the red safety prop S locks into place*

Closing:

☞ *Press safety prop S to the rear*

☞ *Press down the engine cover*

☞ *Press buckle A forwards and hitch shackle C into the hook at the same time*

☞ *Press lock A to the rear*

Locking and unlocking:

The engine cover can be locked with an external lock in eyelet D

4 Troubleshooting

The information given in this chapter is provided for maintenance staff, for fast and reliable detection of malfunctions and their appropriate repair.

Repairs must be carried out by authorised staff.

4.1 Engine trouble

Problem	Possible causes	See
Engine does not start or is not easy to start	Wrong SAE grade of engine lubrication oil	*5-34*
	Fuel grade does not comply with specifications	*5-34*
	Defective or flat battery	*5-31*
	Loose or oxidised cable connections in starter circuit	
	Defective starter, or pinion does not engage	
	Wrong valve tip clearance	
	Defective fuel injector	
Engine starts, but does not run smoothly or faultless	Fuel grade does not comply with specifications	*5-34*
	Wrong valve tip clearance	
	Injection line leaks	
	Defective fuel injector	
Engine overheats. Temperature warning system responds	Oil level too low	*5-8*
	Oil level too high	*5-8*
	Dirty air filter	*5-13*
	Dirty oil cooler fins	
	Defective fuel injector	
Insufficient engine output	Oil level too high	*5-8*
	Fuel grade does not comply with specifications	*5-34*
	Dirty air filter	*5-13*
	Wrong valve tip clearance	
	Injection line leaks	
	Defective fuel injector	
Engine does not run on all cylinders	Injection line leaks	
	Defective fuel injector	
Insufficient or no engine oil pressure	Oil level too low	*5-8*
	Machine inclination too high (max. 25°)	
	Wrong SAE grade of engine lubrication oil	*5-34*
Engine oil consumption too high	Oil level too high	*5-8*
	Machine inclination too high (max. 25°)	

Problem		Possible causes	See
Engine smoke	Blue	Oil level too high	*5-8*
		Machine inclination too high (max. 25°)	
	White	Engine starting temperature too low	
		Fuel grade does not comply with specifications	*5-34*
		Wrong valve tip clearance	
		Defective fuel injector	
	Black	Dirty air filter	*5-13*
		Wrong valve tip clearance	
		Defective fuel injector	

5 Maintenance

5.1 Introduction

Operational readiness and the service life of machines are heavily dependent on maintenance.

It is therefore in the interest of the machine owner to carry out the prescribed maintenance work.

Before carrying out service and maintenance work, always read, understand and follow the instructions given in:

- Chapter 2 “SAFETY INSTRUCTIONS” of this Operator's Manual

Carry out the prescribed inspections and rectify any disorders before putting the machine into operation.

Secure open (engine) covers appropriately. Do not open (engine) covers on slopes or in strong wind.

Dirt can be blown away and cause severe injuries when using compressed air. Always wear protective goggles, masks and clothing.

Daily service and maintenance work, and maintenance according to maintenance plan “A” must be carried out by a specifically trained driver. All other maintenance work must be carried out by trained and qualified staff only.

The maintenance plans indicate when the maintenance work mentioned below must be carried out – *see Maintenance plan (overview)* on page 5-35.

5.2 Maintenance prop

Front skip maintenance prop

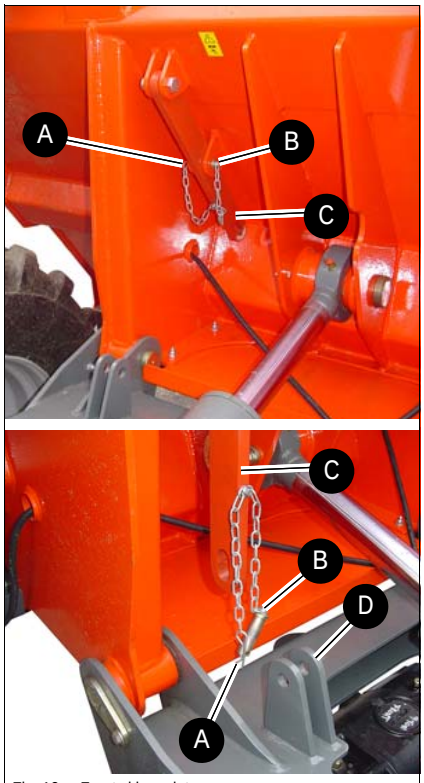


Fig. 12: Front skip maintenance prop

Danger!

Fold down the red maintenance prop before you carry out maintenance work with the skip raised.

Procedure to follow:

☞ *Raise the skip*

☞ *Remove split pin A out of lock pin B*

☞ *Pull out lock pin B*

☞ Hold maintenance prop C as you do so

☞ *Fold down maintenance prop C*

Caution!

Stay clear of the danger area under the skip!

☞ *The skip must be lowered a little.*

☞ *Lower the skip until maintenance prop C fits into bracket D.*

☞ *Fasten maintenance prop C in bracket D with lock pin B*

☞ *Insert split pin A in lock pin B*

Swivel skip maintenance prop

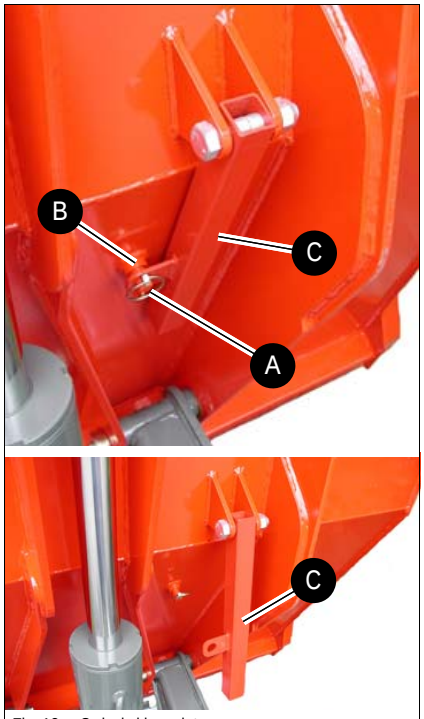


Fig. 13: Swivel skip maintenance prop

Danger!

Mount the red maintenance prop before you carry out maintenance work with the skip raised.

Procedure to follow:

☞ *Raise the skip*

☞ *Remove split pin A out of lock pin B*

☞ *Fold down maintenance prop C*

☞ *Lower the skip until maintenance prop C rests on the swivelling console*

Important!

Fasten maintenance prop C on the skip again (in the reverse order) once maintenance work is over.

5.3 Fuel system

Specific safety instructions

- Extreme caution is essential when handling fuel – high risk of fire!
- Never carry out work on the fuel system in the vicinity of naked flames or sparks!
- Do not smoke when working on the fuel system or when refuelling!
- Before refuelling, switch off the engine and remove the ignition key!
- Do not refuel in closed rooms!
- Wipe away fuel spills immediately!
- Keep the machine clean to reduce the risk of fire!

Refuelling

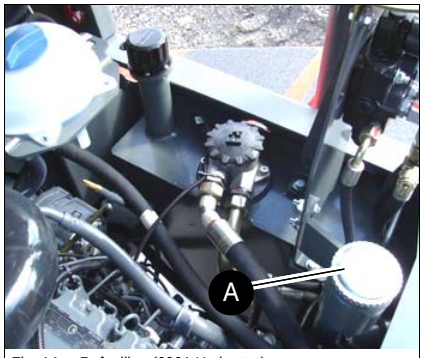


Fig. 14: Refuelling (6001 Hydrostat)

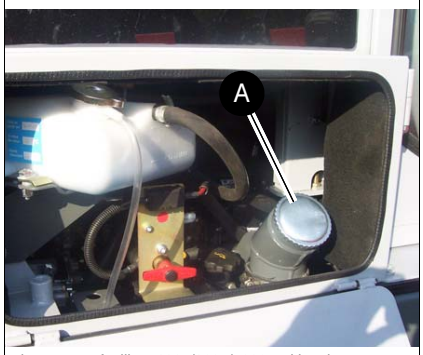


Fig. 14: Refuelling: 6001/9001/10001 with cab

Filler inlet A for the fuel tank is located behind the right-hand side servicing lid.

Danger!

All work involving fuel carries an increased

Danger of fire and poisoning!

☞ *Do not refuel in closed rooms*

☞ *Never carry out work on the fuel system in the vicinity of naked flames or sparks*

☞ *No smoking, no fire!*

Environment!

Use a suitable container to collect the fuel as it drains and dispose of it in an environmentally friendly manner!

Important!

Do not run the fuel tank completely dry. Otherwise, air is drawn into the fuel system. This requires bleeding the fuel system – *see Bleeding the fuel system* on page 5-5.

Important!

Fill up the tank with the correct fuel type at the end of each working day. This prevents condensation water from forming in the fuel tank over night. Do not fill the tank completely but leave some space for the fuel to expand.

Stationary fuel pumps

General

Only refuel from stationary fuel pumps. Fuel from barrels or cans is usually contaminated.

Even the smallest particles of dirt can cause

- Increased engine wear
- Malfunctions in the fuel system and
- Reduced effectiveness of the fuel filters

Refuelling from barrels

If refuelling from barrels cannot be avoided, note the following points (see fig. 15):

- Barrels must neither be rolled nor tilted before refuelling
- Protect the suction pipe opening of the barrel pump with a fine-mesh strainer
- Immerse it down to a max. 15 cm above the floor of the barrel
- Only fill the tank using refuelling aids (funnels or filler pipes) with integral microfilter
- Keep all refuelling containers clean at all times

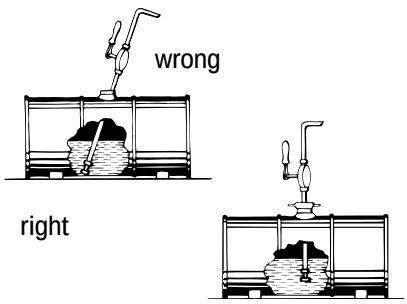


Fig. 15: Refuelling from a barrel

Diesel fuel specification

Use only high-grade fuels

Grade	Cetane number	Use
• No. 2-D according to DIN 51601	Min. 45	For normal outside temperatures
• No. 1-D according to DIN 51601		For outside temperatures below 4 °C (39.2°F) or for operation above 1500 m (0.93 mialtitude

Bleeding the fuel system

Danger!

If the fuel, as it drains, comes into contact with hot engine parts or the exhaust system, there is an increased

Danger of burns!

☞ *Never bleed the fuel system if the engine is hot!*

Bleed the fuel system in the following cases:

- After removing and fitting the fuel filter, prefilter or the fuel lines back on again.
- After running the fuel tank empty.
- After running the engine again, after it has been out of service for a longer period of time.

Bleed the fuel system as follows:

☞ *Fill the fuel tank*

☞ *Turn the ignition key to the first position*

☞ *Wait about 5 minutes while the fuel system bleeds itself automatically*

☞ *Start the engine*

If the engine runs smoothly for a while, and then stops; or if it does not run smoothly:

☞ *Switch off the engine*

☞ *Bleed the fuel system again as described above*

☞ *Have this checked by authorised staff if necessary*

Replacing the fuel filter (Perkins diesel engine)

Danger!

If the fuel, as it drains, comes into contact with hot engine parts or the exhaust system, there is an increased

Danger of burns!

☞ *Never change the fuel filter if the engine is hot!*

Environment!

Use a suitable container to collect the fuel as it drains and dispose of it in an environmentally friendly manner!

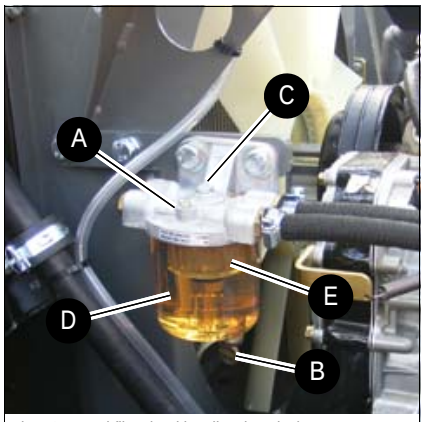


Fig. 16: Fuel filter (Perkins diesel engine)

Removing the fuel filter

Proceed as follows:

☞ *Unscrew screw A*

➥ This aspirates air from above and allows you to carry out the following work steps more quickly.

☞ *Place a suitable container underneath the filter*

☞ *Unscrew screw B*

➥ The fuel runs out of the filter housing.

☞ Empty the filter housing completely.

☞ *Unscrew screw C and remove filter housing D*

☞ *Remove fuel filter E*

Mounting the fuel filter

Proceed as follows:

☞ *Mount and tighten all elements in the reverse order with a new filter element*

☞ *Bleed the fuel system – see Bleeding the fuel system on page 5-5*

☞ *Make a test run – and check for tightness!*

Environment!

Dispose of replaced fuel filters in an environmentally friendly manner!

Replacing the fuel filter (Deutz diesel engine)

Danger!

If the fuel, as it drains, comes into contact with hot engine parts or the exhaust system, there is an increased

Danger of burns!

☞ *Never change the fuel filter if the engine is hot!*

Environment!

Use a suitable container to collect the fuel as it drains and dispose of it in an environmentally friendly manner!

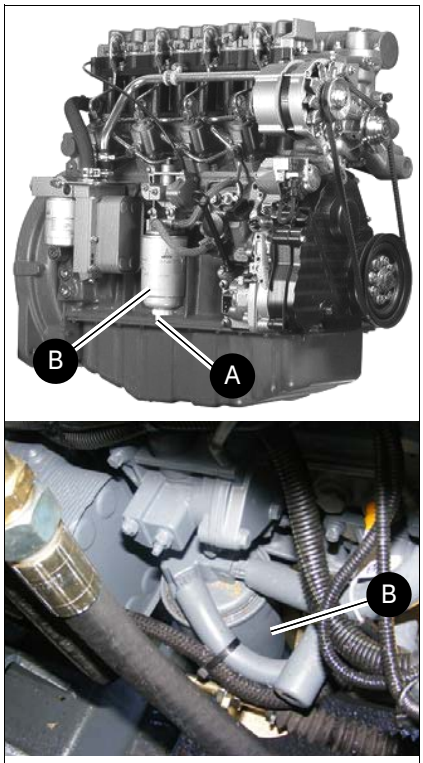


Fig. 17: Fuel filter (Deutz diesel engine)

Removing the fuel filter

Proceed as follows:

☞ *Place a suitable container underneath the filter*

☞ *Unscrew screw A*

➥ The fuel runs out of the filter housing.

☞ Empty the filter housing completely.

☞ *Remove filter housing B*

☞ *Replace the fuel filter*

Mounting the fuel filter

Proceed as follows:

☞ *Mount and tighten all elements in the reverse order with a new filter element*

☞ *Bleed the fuel system – see Bleeding the fuel system on page 5-5*

☞ *Make a test run – and check for tightness!*

Environment!

Dispose of replaced fuel filters in an environmentally friendly manner!

5.4 Engine lubrication system

Caution!

If the engine oil level is too low or if an oil change is overdue, this can cause

Engine damage or loss of output!

☞ *Have the oil changed by an authorised workshop*
– see chapter 5.15 Maintenance plan (overview) on page 5-35

Checking the oil level

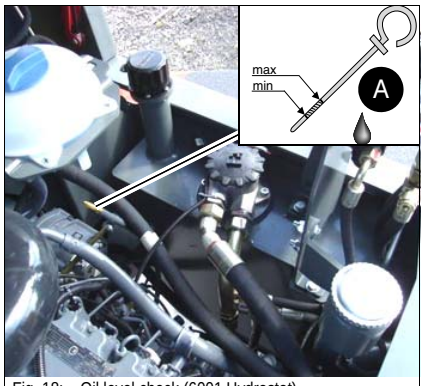


Fig. 18: Oil level check (6001 Hydrostat)

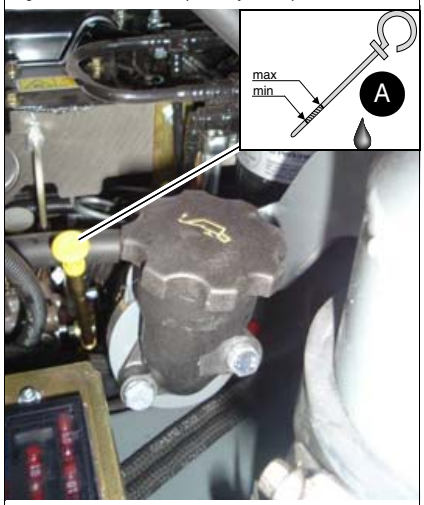


Fig. 18: Oil level check (6001/9001/10001 with cab)

Important!

Check the oil level once a day.
We recommend checking it before starting the engine. After switching off a warm engine, wait at least 5 minutes before checking.

Checking the oil level

☞ *Proceed as follows:*

- Park the machine on level ground
- Switch off the engine!
- Let the engine cool down
- Open the engine cover
- Clean the area around the oil dipstick with a lint-free cloth
- Oil dipstick A:

☞ Pull it out
☞ Wipe it with a lint-free cloth
☞ Push it back in as far as possible
☞ Withdraw it and read off the oil level

☞ *However if necessary, fill up oil at the latest when the oil reaches the MIN mark on the oil dipstick* A

Filling up engine oil

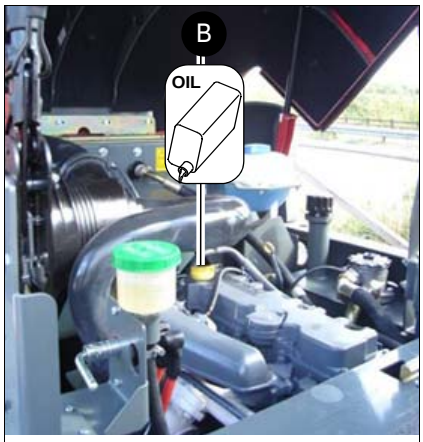


Fig. 19: Filling in engine oil (6001 Hydrostat)

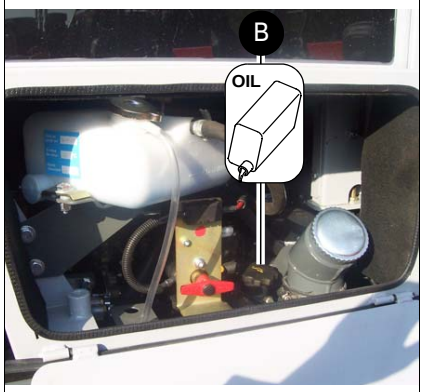


Fig. 19: Filling in engine oil (6001/9001/10001 with cab)

Caution!

Too much or incorrect engine oil can result in engine damage! For this reason:

☞ *Do not add engine oil above the MAX mark of oil dipstick 18/A*

☞ *Use only the specified engine oil*

Environment!

Use a suitable container to collect the engine oil as it drains and dispose of it in an environmentally friendly manner!

Filling up engine oil

☞ *Proceed as follows:*

- Clean the area around oil filler cap B with a lint-free cloth
- Open filler cap B
- Raise oil dipstick A slightly to allow any trapped air to escape
- Fill in engine oil
- Wait about 3 minutes until all the oil has run into the oil sump
- Check the oil level – *see Checking the oil level* on page 5-8
- Fill up if necessary and check the oil level again
- Close filler cap B
- Push oil dipstick A back in as far as possible
- Completely remove all oil spills from the engine

5.5 Engine cooling system

The oil/water radiator is located in the engine compartment, behind the engine. It cools the diesel engine, and the hydraulic oil of the drive and work hydraulics.

The expansion tank for the coolant is located in the engine compartment next to the toolbox.

Specific safety instructions

- Dirt on the radiator fins reduces the cooler's heat dissipation capacity! To avoid this:
  - ☞ Clean the outside of the radiator at regular intervals. Use oil-free compressed air (2 bar max.) to clean. Maintain a certain distance to the radiator to avoid damage to the radiator fins. Refer to the maintenance plans in the appendix for the cleaning intervals
  - ☞ In dusty or dirty work conditions, clean more frequently than indicated in the maintenance plans
- An insufficient coolant level reduces the heat dissipation capacity as well and can lead to engine damage! Therefore:
  - ☞ Check the coolant level at regular intervals. Refer to the maintenance plans in the appendix for the intervals
  - ☞ If coolant must be added frequently, check the cooling system for leaks and/or contact your dealer!
  - ☞ Never fill in cold water/coolant if the engine is warm!
  - ☞ After filling the expansion tank, make a test run with the engine and check the coolant level again after switching off the engine
- The use of the wrong coolant can destroy the engine and the cooler. Therefore:
  - ☞ Add enough antifreeze compound to the coolant – but never more than 50 %. If possible use brand-name antifreeze compounds with anticorrosion additives
  - ☞ Observe the coolant compound table – *see chapter 6.12 Coolant compound table* on page 6-4
  - ☞ Do not use cooler cleaning compounds if an antifreeze compound has been added to the coolant – otherwise this causes sludge to form, which can damage the engine
- Once you have filled the expansion tank:
  - ☞ Test run the engine
  - ☞ Switch off the engine
  - ☞ Let the engine cool down
  - ☞ Check the coolant level again

Environment!

Use a suitable container to collect the coolant as it drains and dispose of it in an environmentally friendly manner!

Checking/filling up coolant

Danger!

Never open the coolant tank and never drain coolant if the engine is warm since the cooling system is under high pressure –

Danger of burns!

☞ *Wait at least 15 minutes after switching off the engine!*

☞ *Wear protective gloves and clothing*

☞ *Open filler cap B to the first notch and release the pressure*

☞ *Make sure the coolant temperature is sufficiently low so you can touch the radiator plug with your hands*

Danger!

Antifreeze is flammable and poisonous –

Danger of accidents!

☞ *Keep away from flames*

☞ *Avoid eye contact with antifreeze*

- If antifreeze comes into contact with the eyes

➥ Immediately rinse with clean water and seek medical assistance

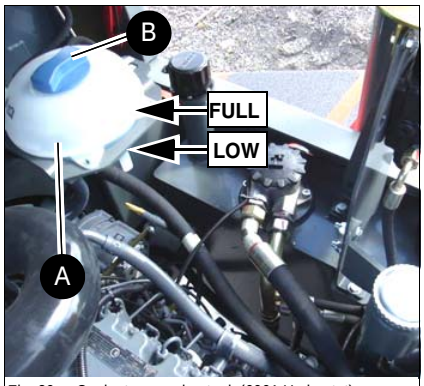


Fig. 20: Coolant expansion tank (6001 Hydrostat)

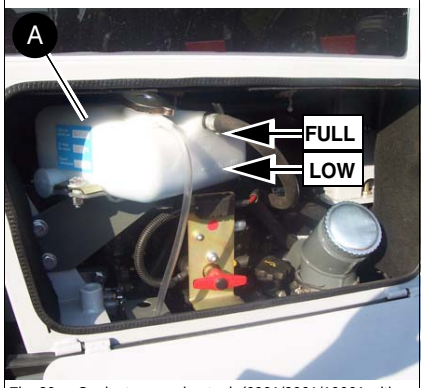


Fig. 20: Coolant expansion tank (6001/9001/10001 with cab)

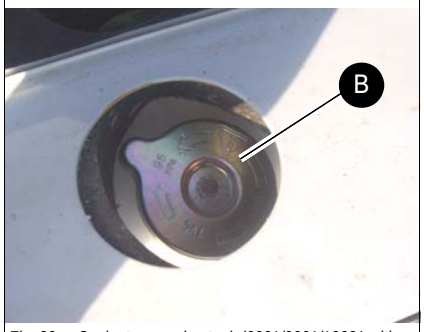


Fig. 20: Coolant expansion tank (6001/9001/10001 with cab)

Checking the coolant level

☞ *Proceed as follows:*

- Park the machine on level ground
- Switch off the engine!
- Remove the key and carry it with you
- Let the engine and the coolant cool down
- Open the engine cover
- Check the coolant level on the transparent coolant tank A and on the radiator B

☞ If the coolant level is below the LOW seam or if there is no coolant at the radiator's filler inlet:

- Fill up coolant

Important!

Check the coolant level once a day.
We recommend checking it before starting the engine.

Filling up coolant

After the engine has cooled down:

☞ *Release overpressure in the radiator*

☞ *Carefully open the cap to the first notch and fully release the pressure*

☞ *Open filler cap B*

☞ *Fill in coolant up to the lower edge of the filler inlet (radiator)*

☞ *Close filler cap B*

☞ *Start the engine and let it warm up for about 5 – 10 minutes*

☞ *Switch off the engine*

☞ *Remove the key and carry it with you*

☞ *Let the engine cool down*

☞ *Check the coolant level again*

➥ The coolant level must be between the LOW and FULL tank seams

☞ *If necessary, fill up coolant and repeat the procedure until the coolant level remains constant*

Important!

Check the antifreeze every year before the cold season sets in!

5.6 Air filter

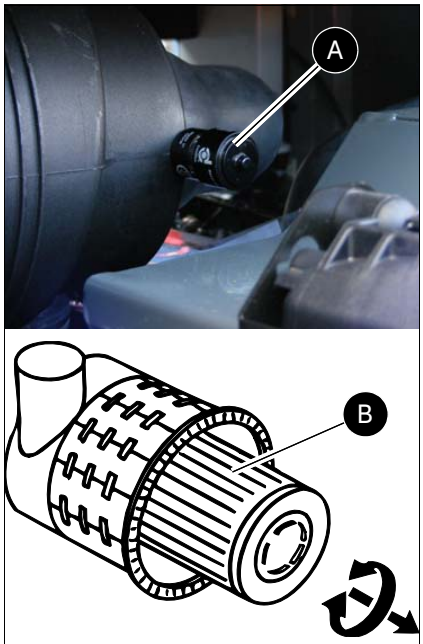


Fig. 21: Indicator for air filter contamination

Caution!

The filter cartridge will be damaged if it is washed or brushed out!
Bear in mind the following to avoid premature engine wear!

☞ *Do not clean the filter cartridge*

☞ *Replace the filter cartridge when the telltale comes on*

☞ *Never reuse a damaged filter cartridge*

☞ *Ensure cleanliness when replacing the filter cartridge!*

Control element A on the air filter monitors the filter cartridge.

☞ *Replace filter B if:*

- Control element A indicates air filter contamination
- According to the maintenance plan

Important!

For applications in especially dusty environment, replace or clean the air filter more frequently.

Caution!

Filter cartridges degrade prematurely when in service in acidic air for longer periods of time. This risk is present for example in acid production facilities, steel and aluminium mills, chemical plants and other nonferrous-metal plants.

☞ *Replace filter B after 50 service hours at the latest!*

General instructions for air filter maintenance:

- Store filters in their original packaging and in a dry place
- Do not knock the filter against other objects as you install it
- Check air filter attachments, air intake hoses and air filters for damage, and immediately repair or replace if necessary
- Check the screws at the induction manifold and the clamps for tightness

Replacing the filter

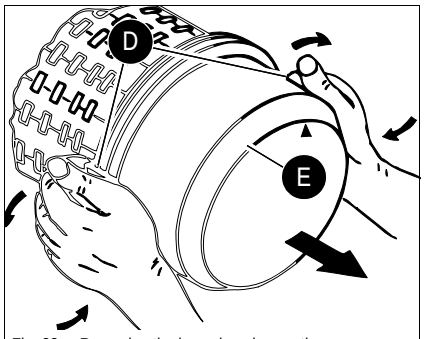


Fig. 22: Removing the lower housing section

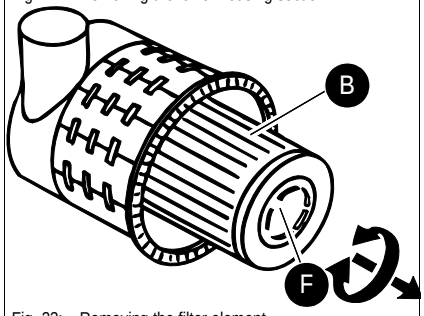


Fig. 23: Removing the filter element

- Replace filter *A* as follows:

☞ *Switch off the engine*

☞ *Remove the key and carry it with you*

☞ *Let the engine cool down*

☞ *Open the engine cover*

☞ *Remove dirt and dust from the air filter and the area around the air filter*

☞ *Fold both bow clips* D *on lower housing section* E *to the outside*

☞ *Remove lower housing section* E

☞ *Unscrew wing nut F*

☞ *Carefully remove filter* B *with slightly turning movements*

☞ Make sure *all dirt (dust) inside the air filter housing has been removed*

☞ Clean the parts with a clean lint-free cloth, do not use compressed air

☞ *Check the air filter cartridges for damage, only install intact filters*

☞ *Carefully insert the new filter* B *in the air filter housing*

☞ *Position lower housing section* E *(make sure it is properly seated)*

☞ *Close both bow clips* D

5.7 V-belt

Danger!

Only check or retighten/replace the V-belt when the engine is switched off –

Danger of personal injury!

☞ *Switch off the engine before carrying out inspection work in the engine compartment!*

☞ *Disconnect the battery*

☞ *Let the engine cool down*

Caution!

Cracked and stretched V-belts cause engine damage

☞ *Have the V-belt replaced by an authorised workshop*

Check the V-belt once a day or every 10 service hours, and retighten if necessary!
Retighten new V-belts after about 15 minutes of running time.

Checking V-belt tension

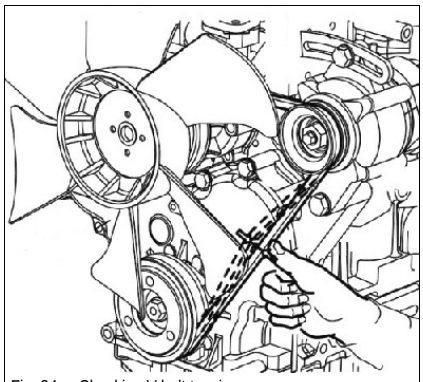


Fig. 24: Checking V-belt tension

- Check as follows:
  - ☞ Switch off the engine
  - ☞ Remove the key and carry it with you
  - ☞ Disconnect the battery
  - ☞ Let the engine cool down
  - ☞ Open the engine cover
  - ☞ Carefully check V-belt 1 for damage, cracks or cuts
  - ☞ Replace the V-belt if it touches the base of the V-belt groove or the discs of the pulley
- If the V-belt is damaged:
  - ☞ Have the V-belt replaced by authorised staff
  - ☞ Press with your thumb about 100 N to check the deflection of the V-belt between the crankshaft disc and the fan wheel. A new V-belt should have a deflection of 6 to 8 mm(0.23'' to 0.31''), a used V-belt (after about 5 minutes running time) should have a deflection of 7 to 9 mm (0.3'' to 0.4'').
  - ☞ Retighten the V-belt if necessary

Retightening the V-belt

Caution!

Overtightening the V-belt can damage the V-belt, the V-belt guide and the water pump bearing.
Avoid contact of oil, grease or similar substances with the V-belt.

☞ *Check V-belt tension – see Checking V-belt tension on page 5-15*

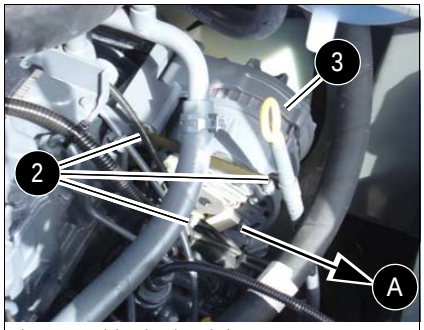


Fig. 25: Retightening the V-belt

- Retighten as follows:

☞ Switch off the engine
☞ Fold the control lever base up
☞ Remove the key and carry it with you
☞ Disconnect the battery or the battery master switch
☞ Let the engine cool down
☞ Open the engine cover
☞ Slacken fastening screws 2 of alternator 3
☞ Use a suitable tool to push the alternator in the direction of arrow A until reaching the correct V-belt tension (fig. 25)
☞ Keep the alternator in this position, and at the same time retighten fastening screws 2
☞ Check V-belt tension again and adjust it if necessary
☞ Connect the battery or the battery master switch
☞ Close the engine cover

5.8 Hydraulic system

Specific safety instructions

- Release the pressure in all lines carrying hydraulic oil prior to any maintenance and repair work. To do this:
  - Lower all hydraulically controlled attachments
  - Move all control levers of the hydraulic control valves several times
- Hydraulic oil escaping under high pressure can penetrate the skin and cause serious injuries. Always consult a doctor immediately even if the wound seems insignificant – otherwise serious infections could set in!
- If the hydraulic oil in the sight glass is cloudy, this indicates that water or air has penetrated the hydraulic system. This can cause damage to the hydraulic pump!
- Oil or fuel flowing out of high pressure lines can cause fire or malfunctions, and severe injuries or damage to property. Interrupt work immediately if slack nuts or damaged hoses and lines are detected.

  ☞ Contact your Neuson dealer immediately
- Replace the hose or line if one of the problems mentioned below is detected.

  ☞ Damaged or leaky hydraulic seals.

  ☞ Worn or torn shells or uncovered reinforcement branches.

  ☞ Expanded shells in several positions.

  ☞ Entangled or crushed movable parts.

  ☞ Foreign bodies jammed or stuck in protective layers.

Caution!

Contaminated hydraulic oil, lack of oil or wrong hydraulic oil –

Danger of severe damage to the hydraulic system!

☞ *Take care to avoid contamination when working!*

☞ *Always fill in hydraulic oil using the filling screen!*

☞ *Only use authorised oils of the same type*
– see chapter 5.14 Fluids and lubricants on page 5-34

☞ *Always fill up hydraulic oil before the level gets too low*
– see Filling up hydraulic oil on page 5-19

☞ *If the hydraulic system is filled with biodegradable oil, then only use biodegradable oil of the same type for filling up – observe the sticker on the hydraulic oil tank!*

☞ *Contact customer service if the hydraulic system filter is contaminated with metal chippings. Otherwise, follow-on damage can result!*

Environment!

Collect drained hydraulic oil and biodegradable oil in a suitable container!
Dispose of drained oil and used filters by an ecologically safe method.
Always contact the relevant authorities or commercial establishments in charge of oil disposal before disposing of biodegradable oil.

Checking the hydraulic oil level

Caution!

Do not fill up oil if the oil level is above the FULL mark, otherwise the hydraulic system can be damaged and escaping oil can cause serious injuries.

☞ *Check the hydraulic oil level each time the machine is put into operation or once a day*

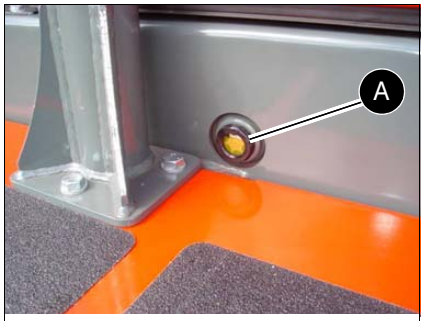


Fig. 26: Oil level gauge

☞ *Proceed as follows:*

- Park the machine on level ground
- Retract all hydraulic rams

☞ Fully dump in the skip

- Switch off the engine
- Sight glass A is located on the left-hand side of the dumper, above the mudguard
- Check the oil level on sight glass A
- The oil level must be at the FULL level
  - A gauge element in sight glass A indicates the oil level

If the oil level is lower

- Fill up hydraulic oil

The oil level varies according to the machine's operating temperature:

Machine condition	Temperature	Oil level
• Before putting into operation	Between 10 and 30 °C (50°F and 86°F)	LOW mark
• Normal operation	Between 50 and 90 °C (122°F and 194°F)	FULL mark

Important!

Measure the oil level of the hydraulic system only after the machine reaches its operating temperature.

Filling up hydraulic oil

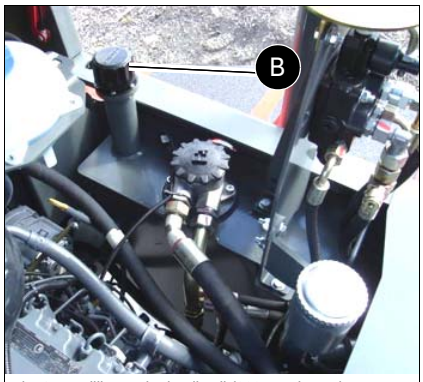


Fig. 27: Filling up hydraulic oil (6001 Hydrostat)

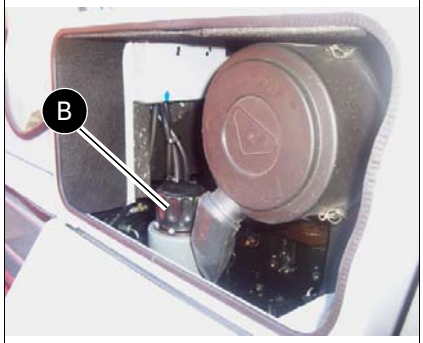


Fig. 27: Filling up hydraulic oil (6001/9001/10001 with cab)

Danger!

Removing the filler plug can cause oil to escape –

Danger of accidents!

☞ *Carefully unscrew the plug to slowly reduce the pressure inside the tank.*

Do not fill up the hydraulic oil unless the engine is switched off. Otherwise, hydraulic oil will overflow at the filler opening on the hydraulic tank.

☞ *Fill up as follows:*

- Park the machine on level ground
- Retract all hydraulic rams
- Switch off the engine
- Clean the area around filler inlet B with a cloth
- Open filler inlet B

With the filter insert in place:

- Fill up hydraulic oil
- Check the hydraulic oil level on sight glass A
- Fill up if necessary and check again
- Firmly tighten plug B

Changing hydraulic oil

Important!

Only change the hydraulic oil if it is warm (about 50 °C / 122°F).
Lower the skip in centre position before draining the oil (dumper in straight-ahead position).

☞ *Open the drain plug to let the oil drain into a container*

☞ *Check the hydraulic oil tank for contamination and clean if necessary*

☞ *Replace the filter according to the maintenance specifications*

☞ *Screw the drain plug back in correctly*

☞ *Fill in clean hydraulic oil through the strainer*
– see Filling up hydraulic oil on page 5-19

☞ *Close the hydraulic oil tank correctly*

☞ *Let the machine run at idling speed without load for some minutes*

Fouling indicator for hydraulic oil filter

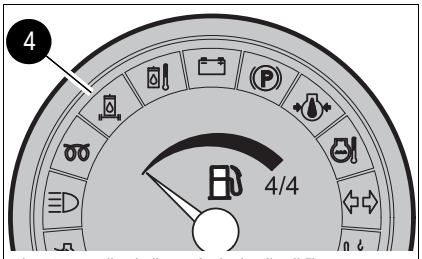


Fig. 28: Fouling indicator for hydraulic oil filter

A red telltale on the instrument panel monitors the filter.

Replace the filter:

- If the telltale comes on when the hydraulic oil is at operating temperature
- According to the maintenance interval

In cold weather the telltale can come on immediately when the engine is started. This is caused by increased oil viscosity. In this case:

☞ *Let the engine run at idling speed for about 2 minutes*

Replacing the hydraulic oil filter element

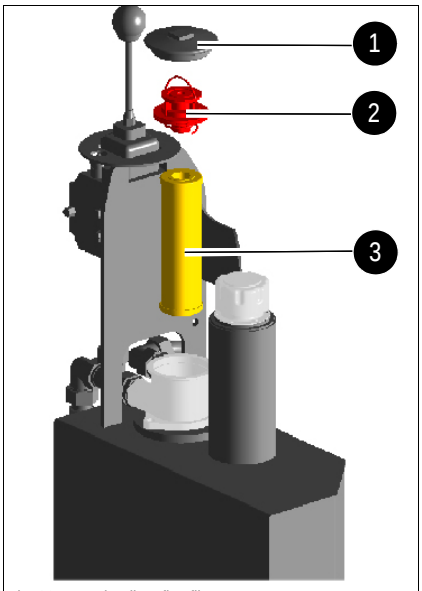


Fig. 30: Hydraulic reflux filter

Proceed as follows:

☞ *Switch off the engine*

☞ *Open cover 1 by about 2 turns and wait until the oil level in the filter housing drops to the oil level in the hydraulic oil tank*

☞ *Open the cover completely and remove it*

☞ *Pull filler pipe 2 upwards with a slightly turning movement, together with filter element 3*

☞ *Remove the filter element from the filler pipe and dispose of it*

☞ *Slide the filler pipe onto the new filter element and insert it in the filter*

☞ *Tighten the cover by hand*

Important information for the use of biodegradable oil

- Use only the biodegradable hydraulic fluids which have been tested and approved by Neuson Baumaschinen GmbH. Always contact Neuson Baumaschinen GmbH for the use of other products which have not been recommended. In addition, ask the oil supplier for a written declaration of guarantee. This guarantee is applicable to damage occurring on the hydraulic components, which can be proved to be due to the hydraulic fluid.
- Use only biodegradable oil of the same type for filling up. In order to avoid misunderstandings, a label providing clear information is located on the hydraulic oil tank (next to the filler inlet) regarding the type of oil currently used! Replace missing labels!
  The joint use of two different biodegradable oils can affect the quality of one of the oil types. Therefore, make sure the remaining amount of initial hydraulic fluid in the hydraulic system does not exceed 8 % when changing biodegradable oil (manufacturer indications).
- Do not fill up with mineral oil – the content of mineral oil should not exceed 2 % in order to avoid foaming problems and to ensure biological degradability.
- When running the machine with biodegradable oil, the same oil and filter replacement intervals are valid as for mineral oil – *see chapter 5.15 Maintenance plan (overview)* on page 5-35.
- Always have the condensation water in the hydraulic oil tank drained by an authorised workshop before the cold season. The water content may not exceed 0.1 % by weight.
- The instructions in this Operator's Manual concerning environmental protection are also valid for the use of biodegradable oil.
- If additional hydraulic attachments are mounted or operated, use the same type of biodegradable oil for these attachments to avoid mixtures in the hydraulic system.

Subsequent change from mineral oil to biodegradable oil must be carried out by an authorised workshop or by your Neuson partner

Checking hydraulic pressure lines

Specific safety instructions

Danger!

Caution when checking hydraulic lines, especially when searching for leaks. Hydraulic oil escaping under high pressure can penetrate the skin and cause serious injuries.

Danger of personal injury!

☞ *Always consult a doctor immediately, even if the wound seems insignificant – otherwise serious infections could set in!*

☞ *Always observe the following instructions:*

- Retighten leaking screwed fittings and hose connections only when the system is not under pressure; i.e. release the pressure before working on pressurised lines!
- Never weld or solder damaged or leaking pressure lines and screw connections. Replace damaged parts with new ones!
- Never search for leaks with your bare hands, but wear protective gloves!
- Use paper or wood to check for minor leaks. Never use an unprotected light or naked flame!
- Have damaged flexible lines replaced by authorised workshops only!

- Leaks and damaged pressure lines must be immediately repaired or replaced by an authorised workshop or after-sales staff.
  This not only increases the operating safety of your machine but also helps to protect the environment.
- Replace hydraulic hoses every 6 years from the date of manufacture, even if they do not seem to be damaged.

In this respect, we recommend that you observe all the relevant safety regulations for hydraulic lines, as well as the safety regulations regarding accident prevention and occupational health and safety in your country. Also observe DIN 20066, part 5.

5.9 Gearbox lubrication system

Caution!

If the gearbox oil level is too low or if an oil change is overdue, this can cause

Damage to the gearbox

☞ *Have the oil changed by an authorised workshop*
– see chapter 5.15 Maintenance plan (overview) on page 5-35

Checking the oil level

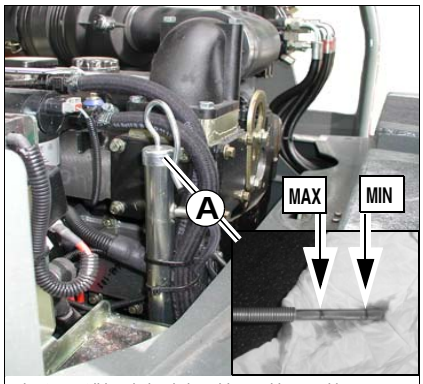
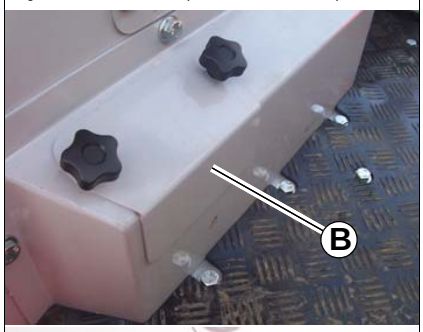


Fig. 31: Oil level check (machines without cab)



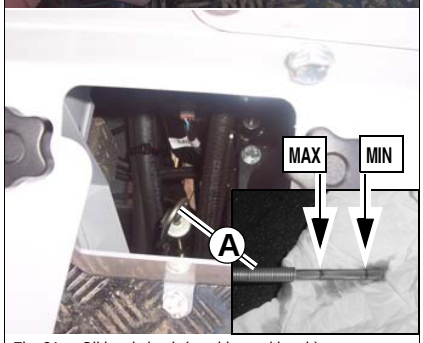


Fig. 31: Oil level check (machines with cab)

Important!

Check the oil level once a day.
We recommend checking the oil level before putting the machine into operation.
After switching off the machine, wait at least 5 minutes before checking.

Checking the oil level

☞ *Proceed as follows:*

- Park the machine on level ground
- Switch off the engine!
- Let the gearbox cool down
- Open the engine cover or servicing lid B (cab option)
- Clean the area around the oil dipstick with a lint-free cloth
- Pull out oil dipstick A
- Wipe it with a lint-free cloth
- Push it back in as far as possible
- Withdraw it and read off the oil level

☞ *However if necessary, fill up oil at the latest when the oil reaches the MIN mark on the oil dipstick* A

Filling up gearbox oil

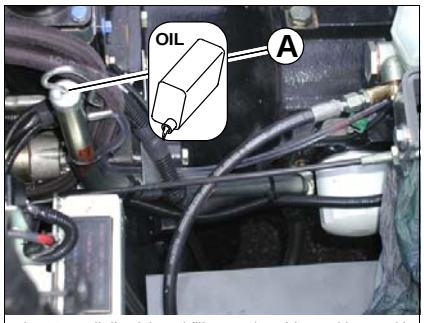


Fig. 32: Oil dipstick and filler cap (machines without cab)

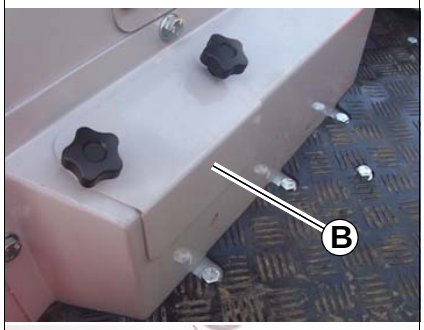


Fig. 32: Oil dipstick and filler cap (machines with cab)

Caution!

Too much or incorrect gearbox oil can result in increased viscosity and gearbox damage! For this reason:

☞ *Do not add gearbox oil above the MAX mark of oil dipstick A*

☞ *Use only the specified gearbox oil*

Environment!

Use a suitable container to collect the gearbox oil as it drains and dispose of it in an environmentally friendly manner!

☞ *Proceed as follows:*

- Open servicing lid B (cab option)
- Clean the area around oil dipstick A with a lint-free cloth
- Pull out oil dipstick A
- Fill in gearbox oil
- Wait about 3 minutes until all the oil has run into the oil sump
- Check the oil level
- Fill up if necessary and check the oil level again
- Push oil dipstick A back in as far as possible
- Completely remove all oil spills from the engine compartment
- Close servicing lid B (cab option)

Replacing the gearbox oil filter cartridge

The oil filter is located under the base plate on the right side of the gearbox.

Danger!

Caution when draining hot gearbox oil –

Danger of burns!

☞ *Wear protective gloves*

Environment!

Collect the drained gearbox oil in a suitable container.
Dispose of used oil and filters in an environmentally friendly manner!

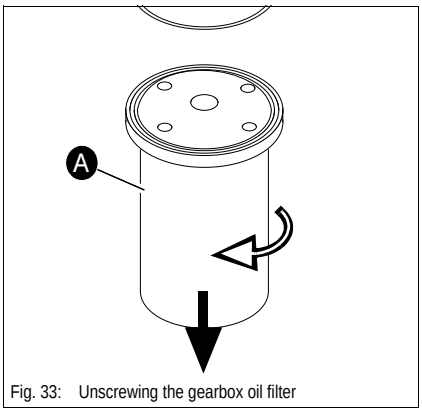


Fig. 33: Unscrewing the gearbox oil filter

☞ *Change the filter as follows:*

- Switch off the engine
- Place a suitable container underneath the oil filter to collect the oil as it drains
- Slowly slacken oil filter cartridge A using a commercially available tool
- Let the oil drain into the container
- Remove the filter cartridge once the oil is completely drained
- Make sure the thread adapter is correctly placed in the filter head

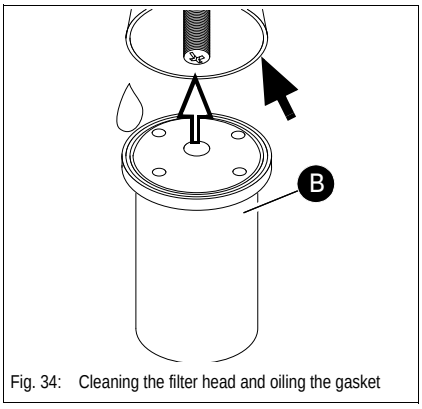


Fig. 34: Cleaning the filter head and oiling the gasket

- Clean the inside of the filter head
- Apply a thin coat of fresh gearbox oil to rubber seal B of the new oil filter cartridge
- Tighten the new filter cartridge by hand until the gasket makes contact

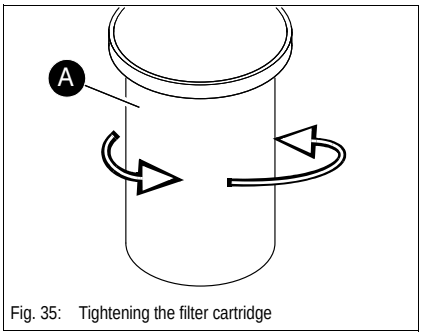


Fig. 35: Tightening the filter cartridge

- Tighten oil filter cartridge A with a commercially available tool by about a further 3/4 of a revolution
- Make sure the gearbox oil level is correct!
- Let the engine run briefly
- Switch off the engine
- Check the seal of oil filter cartridge A and retighten by hand
- Check the oil level and add gearbox oil if necessary
- Completely remove all oil spills from the engine compartment
- Dispose of the used oil filter in an environmentally friendly manner

5.10 Tyres

Fig. 36: Tyres

Tyre wear can vary according to work and ground conditions.

Danger!

Improper tyre repairs –

Danger of accidents!

☞ *All repair work on tyres and rims may only be carried out by authorised workshops.*

☞ *We recommend checking the tyres for wear and the wheel nuts for tightness once a day.*

☞ *Park the machine on firm and level ground to check and carry out maintenance.*

Important!

Checking the tyres at regular intervals increases operational safety and the service life of the tyres, and reduces machine downtimes. Please refer to *Chapter 6.10 "Tyres"* for the authorised tyre types and the correct tyre pressures.

Important!

Replace tyres with new ones after 6 years (irrespective of wear) and dispose of them correctly. After this period, the rubber no longer has its full capability due to various chemical and physical processes.

Inspection work

☞ *Carry out the following maintenance work once a day:*

- Visual check of the tyre condition
- Check the tyre pressure
- Tyre and rim (outside and inside) for damage
- Check for wear
- Remove foreign bodies from the tyre tread
- Remove traces of oil and grease from the tyres

Wheel change

Caution!

The wheels are heavy and can damage the threads on the wheel studs if they are handled incorrectly!

☞ *Use suitable assembly tools, such as covering sleeves for the studs, a jack etc.*

Removing the wheels

Proceed as follows:

☞ *Park the machine on level and firm ground and prevent it from rolling away*

☞ *Slightly loosen the wheel nuts of the wheel you want to remove*

☞ *Place a jack under the axle body, making sure it is standing firmly*

☞ *Raise the side of the axle from which you want to remove the wheel*

☞ *Check the machine is standing firmly*

☞ *Completely remove the wheel nuts*

☞ *Remove the wheel*

Fitting the wheels

Proceed as follows:

☞ *Place the wheel onto the wheel studs*

☞ *Tighten all wheel nuts part-way*

☞ *Lower the raised axle*

☞ *Tighten the wheel nuts to the prescribed torque of 350 – 300 Nm*

Important!

Subsequent to changing wheels check the wheel nuts for tightness after 10 service hours – tighten if necessary!

5.11 Axles

Danger!

Some components of the machine and the oil are still very hot after switching off the machine –

Danger of burns!

☞ *Wait until the engine has cooled down before taking up work.*

☞ *Slowly open filler plug A to release the pressure inside.*

Checking the oil level and filling up oil

Fig. 37: Checking the oil level

☞ *Park the machine on firm and level ground*

☞ *Place the machine so that filler plug A is at the left*

☞ *Remove the ignition key*

☞ *Unscrew screws A*

➥ The oil must be level with opening A

➥ If the oil level is lower,

☞ *Fill in oil through opening A until it flows out slightly*

☞ *Screw screws A back in again*

☞ *Move the machine a few metres*

Draining oil

☞ *Park the machine on firm and level ground*

☞ *Place the machine so that filler plug A is at the bottom*

☞ *Remove the ignition key*

☞ *Unscrew screws A*

➥ The oil now flows out of opening A

☞ Use a suitable container to collect the oil as it drains

Environment!

Collect the oil with a suitable container and dispose of it in an environmentally friendly manner.

5.12 Electric system

Specific safety instructions

- The battery contains sulphuric acid! This acid must not be allowed to come into contact with the skin, the eyes, clothing or the machine.

  Therefore when recharging or working near the battery:

  ☞ Always wear goggles and protective clothing with long sleeves

If acid is spilt:

☞ Thoroughly rinse all affected surfaces immediately with plenty of water

☞ Thoroughly wash any part of the body touched by the acid immediately with plenty of water and seek medical attention at once!

- Especially when charging batteries, as well as during normal operation of batteries, an oxyhydrogen mixture is formed in the battery cells – danger of explosion!
- Do not attempt to jump-start the machine if the battery is frozen or if the acid level is low. The battery can rupture or explode!

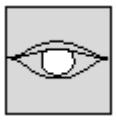
  ☞ Replace the battery immediately
- Avoid naked flames and sparks and do not smoke in the vicinity of open battery cells – otherwise the gas produced during normal battery operation can ignite!
- Use only 12 V power sources. Higher voltages will damage the electric components
- When connecting the battery leads, make sure the poles +/– are not inverted, otherwise sensitive electric components will be damaged
- Do not interrupt voltage-carrying circuits at the battery terminals because of the danger of sparking!
- Never place tools or other conductive articles on the battery – danger of short circuit!
- Disconnect the negative (–) battery terminal from the battery before starting repair work on the electric system
- Dispose of used batteries properly

Service and maintenance work at regular intervals

Before driving the machine

☞ *Check every time before driving the machine:*

- Is the light system OK?
- Is the signalling and warning system OK?



Every week

☞ *Check once a week:*

- Cable and earth connections
- Battery charge condition – *see Battery* on page 5-31
- Condition of battery terminals

Instructions concerning specific components

Cables, bulbs and fuses

Always observe the following instructions:

- Defective components of the electric system must always be replaced by an authorised expert. Bulbs and fuses may be changed by unqualified persons
- When carrying out maintenance work on the electric system, pay particular attention to ensuring good contact in leads

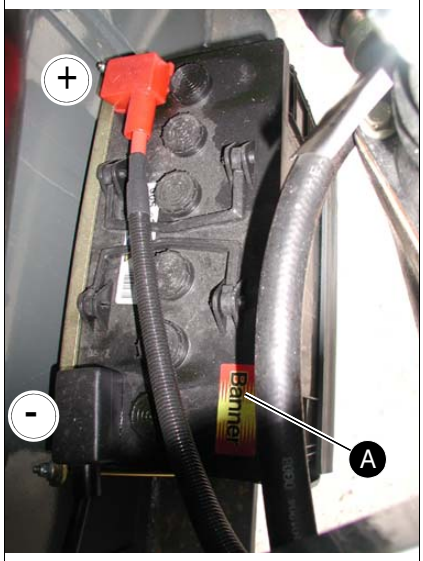
Alternator

Always observe the following instructions:

- Only test run the engine with the battery connected
- When connecting the battery, make sure the poles (+/–) are not inverted
- Always disconnect the battery before carrying out welding work or connecting a quick battery charger

Battery

Fig. 38: Battery (6001 Hydrostat)



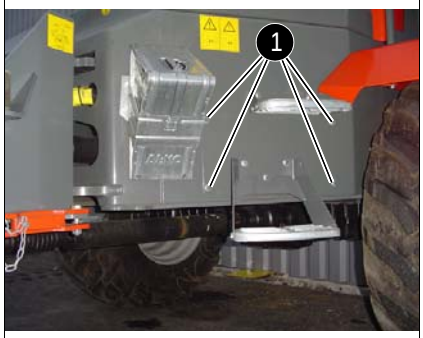


Fig. 38: Battery (6001/9001/10001 machines)

Danger!

Battery acid is highly caustic!

Danger of caustic injury!

Therefore when recharging and/or working near the battery:

☞ *Always wear goggles and protective clothing with long sleeves*

If acid is spilt:

☞ *Thoroughly rinse all affected surfaces immediately with plenty of water*

☞ *Thoroughly wash any part of the body touched by the acid immediately with plenty of water and seek medical attention at once!*

Especially when charging batteries, as well as during normal operation of batteries, an oxyhydrogen mixture is formed in the battery cells –

Danger of explosion!

☞ *Avoid naked lights and sparks in the vicinity of the battery and do not smoke!*

☞ *Do not attempt to jump-start the machine if the battery is frozen or if the acid level is low. The battery can rupture or explode!*

- Replace the battery immediately

☞ *Always disconnect the negative terminal (–) from the battery before starting repair work on the electric system!*

On the 6001, 9001 and 10001 machines, battery A is located behind the servicing lid, on the left-hand side behind the steps. On the 6001 hydrotat machine, it is located at the rear right under the engine cover. The battery is “maintenance-free”. However have the battery checked at regular intervals to make sure the electrolyte level is between the MIN and MAX marks.

Checking the battery requires it to be removed and must be carried out by an authorised workshop.

Always follow the specific battery safety instructions!

Important!

Do not disconnect the battery while the engine is running.

5.13 General maintenance work

Cleaning

Cleaning the machine is divided into 2 separate areas:

- Exterior of the machine
- Engine compartment

The wrong choice of cleaning equipment and agents can impair the operating safety of the machine on the one hand, and on the other undermine the health of the persons in charge of cleaning the machine. It is therefore essential to observe the following instructions.

General instructions for all areas of the machine

When using washing solvents

- Ensure adequate room ventilation
- Wear suitable protective clothing
- Do not use flammable liquids, such as petrol or diesel

When using compressed air

- Work carefully
- Wear goggles and protective clothing
- Do not aim the compressed air at the skin or at other people
- Do not use compressed air for cleaning your clothing

When using a high-pressure cleaner or steam jet

- Electric components and damping material must be covered and not directly exposed to the jet
- Cover the vent filter on the hydraulic oil tank and the filler caps for fuel, hydraulic oil etc.
- Protect the following components from moisture:
  - Engine
  - Electric components such as the alternator etc.
  - Control devices and seals
  - Air intake filters etc.

When using volatile and easily flammable anticorrosion agents and sprays:

- Ensure adequate room ventilation
- Do not use unprotected lights or naked flames
- Do not smoke!

Exterior of the machine

Caution!

Cleaning the machine can cause engine damage.

☞ *Protect the engine against humidity*

The following articles are generally suitable:

- High-pressure cleaner
- Steam jet

Engine compartment

Danger!

Clean the engine at engine standstill only –

Danger of personal injury!

☞ *Switch off the engine before cleaning*

Caution!

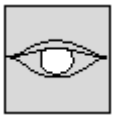
When cleaning the engine with a water or steam jet

☞ *The engine must be cold*

☞ *and do not point the jet directly at electric sensors such as the oil pressure switch.*

The humidity penetrating any such sensors causes them to fail and leads to engine damage!

Screw connections and attachments



All screw connections must be checked regularly for tightness, even if they are not listed in the maintenance schedules.

☞ *Engine fastening screws*

☞ *Fastening screws on the hydraulic system*

☞ *Line and pin fastenings on the attachment*

Retighten loose connections immediately. Contact an authorised workshop if necessary.

Pivots and hinges

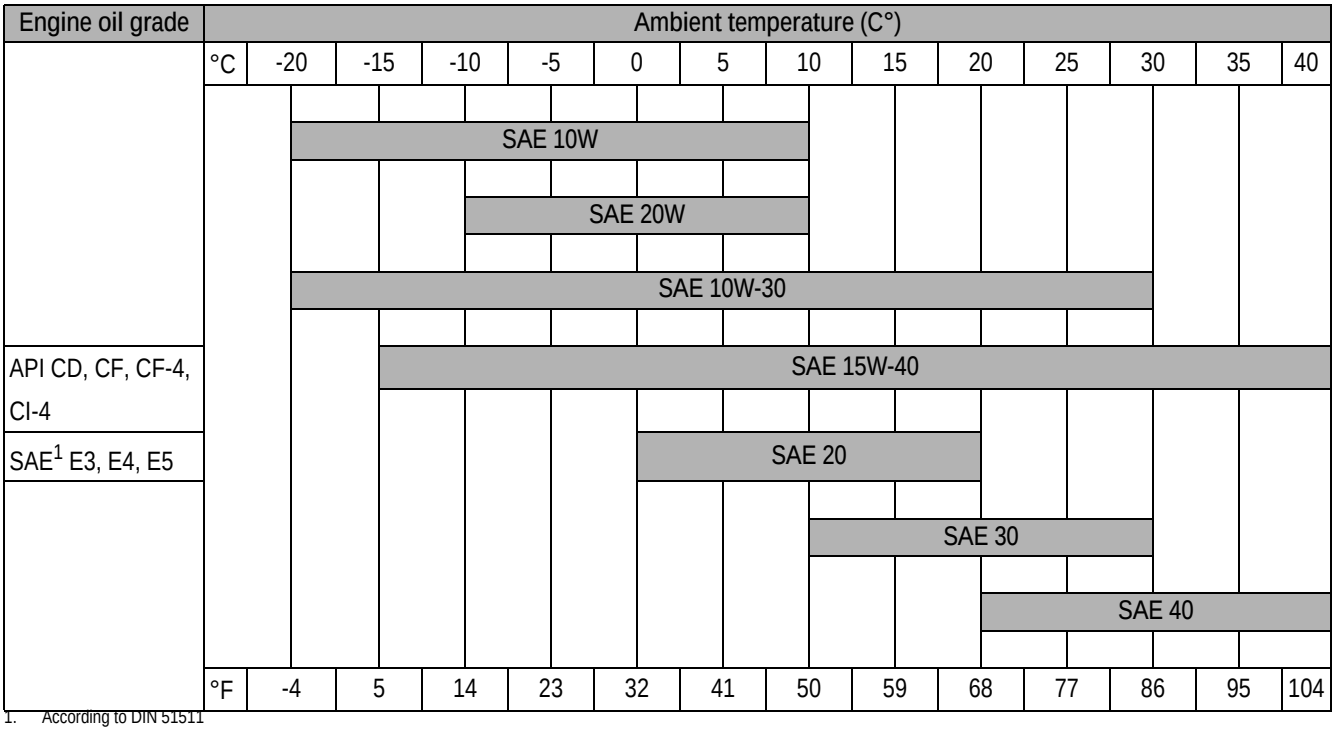
Lubricate all mechanical pivots on the machine (such as joints) and fittings at regular intervals even if they are not listed in the lubrication plan.

5.14 Fluids and lubricants

Component/ application		Engine/machine fluid	Specification	Season/temperature	Capacities[1]
Diesel engine		Engine oil	API CD, CF, CF-4, CI-4	–15 °C (5°F) +45 °C (113°F)	10 l (2.6 gal)
Hydraulic oil tank		Hydraulic oil	HVLP46[2]	Year-round	70 l (18.5 gal)
		Biodegradable oil[3]	PANOLIN HLP Synth 46		
			FINA BIOHYDRAN SE 46		
			BP BIOHYD SE-46		
All lubrication points			FINA Energrease L21M	Year-round	As required
Battery terminals		Acid-proof grease[4]	FINA Marson L2	Year-round	As required
Fuel tank		Diesel fuel	No. 2-D, DIN 51601 grade	Over 4 °C (39.2°F)	70 l 18.5 (gal)
			No. 1-D, DIN 51601 grade	Below 4 °C (39.2°F)	
Radiator		Coolant	Water + antifreeze; SP-C	Year-round	8.50 l (2.2 gal)
Axles	Differential	Engine oil	SAE85W90	Once a year or every 1000 s/h [5]	4.2 l (1.1 gal)
	Semiaxle				0.35 l (0.09 gal)
	Transfer gearbox				0.65 l (0.17 gal)

1. The capacities indicated are approximative values; the oil level check alone is relevant for the correct oil level
1. Capacities indicated are no system fills
2. According to DIN 51524 section 3
3. Hydraulic ester oils (HEES)
4. Standard acid-proof grease
5. First replacement after 50 service hours

Oil grades for the diesel engine, depending on temperature



1. According to DIN 51511

5.15 Maintenance plan (overview)

Work description

For service and maintenance work on the attachment, please refer to the operation and maintenance manual of the attachment manufacturer as well.

	Maintenance plan/service hours (s/h)					
	Maintenance work (once a day)	Every 50 s/h	Every 500 s/h	Once a year or after 1000 s/h	After 1500 s/h	Customer
Fluid and filter changes ( ):						
Carry out the following oil and filter changes (check oil levels after test run):						
• Engine oil [1]		●	●			
• Engine oil filter [2]		●	●			
• Fuel filter [3]		●	●			
• Air filter element			●			
• Coolant				●		
• Hydraulic oil filter insert [4]		●	●			
• Hydraulic oil			●			
• Hydraulic oil tank breather				●		
Inspection work ( ):						
Check the following material. Refill if necessary:						
• Engine oil	●					●
• Engine coolant	●					●
• Hydraulic oil	●					●
Clean the water ducts [5]				●		
Check cooler for engine and hydraulic oil for contamination. Clean if necessary	●					●
Check cooling systems, heating and hoses for leaks and pressure (visual check)	●					●
Air filter (damage)	●					●
Check the air filter, clean if necessary	●					●
Prefilter with water separator: drain water	●					●
• Clean			●			
Check V-belt condition and tension	●					●
Check V-belt condition and tension	●					●

5.15 Maintenance plan (overview)

Work description

For service and maintenance work on the attachment, please refer to the operation and maintenance manual of the attachment manufacturer as well.

	Maintenance plan/service hours (s/h)					
	Maintenance work (once a day)	Every 50 s/h	Every 500 s/h	Once a year or after 1000 s/h	After 1500 s/h	Customer
Check exhaust system for damage and condition	●					●
Check valve tip clearance. Adjust if necessary				●		
Fuel injection pump					●	
Injection and pressure				●		
Check injection nozzles and valves [6]					●	
Empty diesel fuel tank			●			
Check battery electrolyte. Fill up with distilled water if necessary		●	●			●
Tyre check (damage, air pressure, tread depth)	●					●
Wheel nuts		●				●
Check alternator, starter and electric connections, bearing play and function			●			
Preheating system, electric connections			●			
Pressure check of primary pressure limiting valves [7]		●	●			
Check piston rods for damage	●					●
Check screws for tightness		●	●			
Pin lock	●					●
Line fixtures	●					●
Check telltales for correct function		●	●			
Insulating mats in engine compartment		●	●			
Cleanliness of access	●					●
Adhesive labels and Operator's Manual		●	●			
Engine cover gas strut	●					●
Lubrication service ( ):						
Lubricate the following assemblies/components – *see Lubrication plan* on page 5-38:						

5.15 Maintenance plan (overview)

Work description

For service and maintenance work on the attachment, please refer to the operation and maintenance manual of the attachment manufacturer as well.

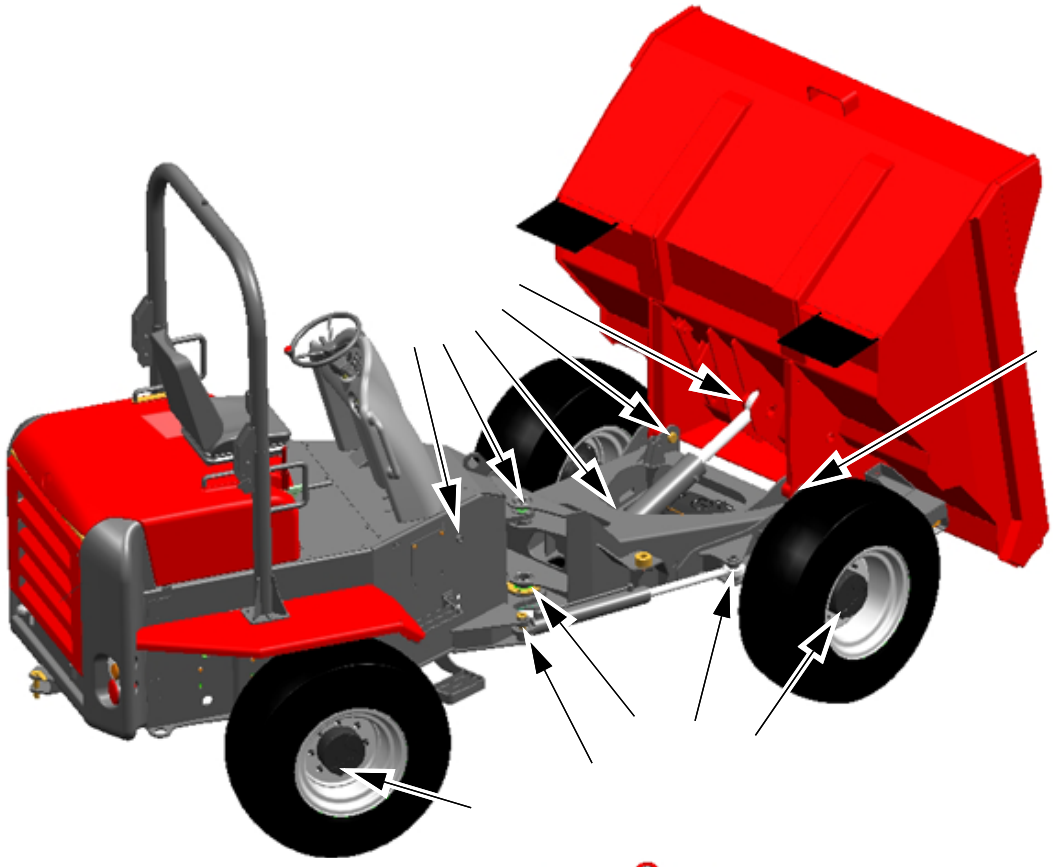
	Maintenance plan/service hours (s/h)					
	Maintenance work (once a day)	Every 50 s/h	Every 500 s/h	Once a year or after 1000 s/h	After 1500 s/h	Customer
• Steering ram	●					●
• Tilt ram – offset ram	●					●
• Articulated joint	●					●

1. Drain engine oil the first time after 50 s/h, then every 250 s/h
2. Replace the engine oil filter the first time after 50 s/h, then every 250 s/h
3. Replace the fuel filter the first time after 50 s/h, then every 250 s/h
4. Replace the hydraulic oil filter insert the first time after 50 s/h, then every 500 s/h
5. Clean the water ducts every other 1000 s/h servicing
6. Check the injection nozzles and the valves every other 1500 s/h servicing
7. Check the first time at 50 s/h, then every 500 s/h

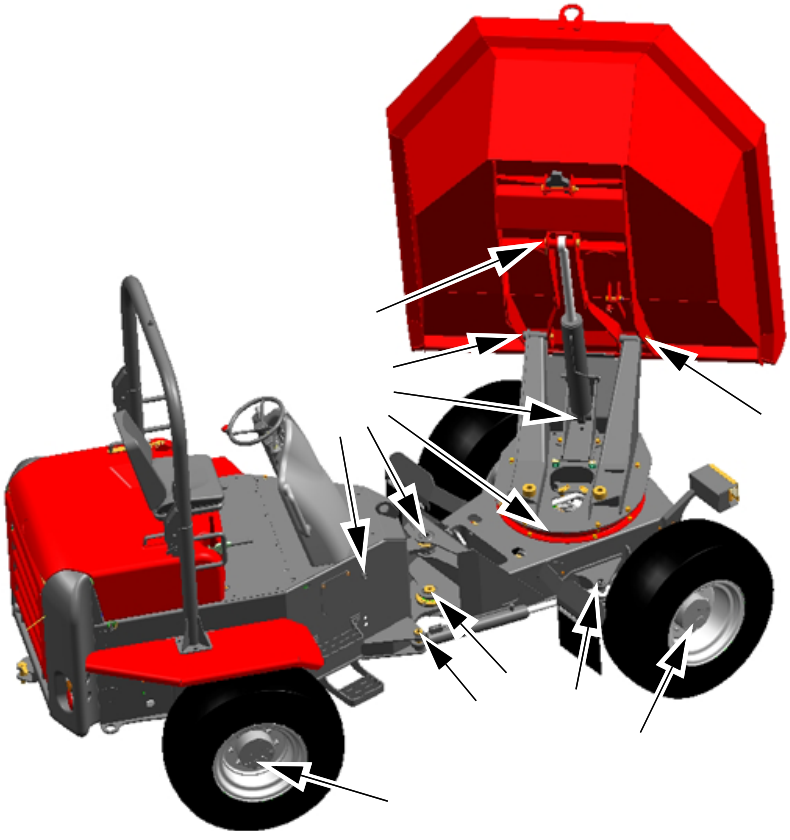
5.16 Lubrication plan

Fold down the red maintenance prop before you carry out maintenance work with the skip dumped out.– see chapter 5.2 *Maintenance prop* on page 5-2

Front skip



Swivel skip



6 Specifications

6.1 Chassis

Sturdy steel sheet chassis, rubber-mounted engine

6.2 Engine

Engine	Model 6001			Models 9001/10001	
	Up to serial number AA60080D	Up to serial number AD	From serial number AD	Up to serial number AA91012F	From serial number AB91013F
Product	Perkins diesel engine		Deutz diesel engine	Perkins diesel engine	
Type	1004	1104 C-44	TD2011 L04	1004	1104 C-44 T
Design	Water-cooled 4 stroke diesel engine				
No. of cylinders	4				
Displacement	3990 cm³ 243.5 in³	4400 cm³ 268.5 in³	3619 cm³ 220.8 in³	3990 cm³ 243.5 in³	4400 cm³ 268.5 in³
Nominal bore and stroke	103 x 127 mm 4.0'' x 5.0''	105 x 127 mm 4.1'' x 5.0''	96 x 125 mm 3.8'' x 4.9''	100 x 127 mm 3.9'' x 5.0''	105 x 127 mm 4.1'' x 5.0''
Output	60 kW +/- 5 % at 2200 rpm	61.5 kW +/- 5 % at 2200 rpm	64.6 kW at 2600 rpm	74.5 kW +/- 5 % at 2200 rpm	74.5 kW +/- 5 % at 2200 rpm
Interm. torque	290 Nm at 1200 rpm	308 Nm at 1200 rpm	266 Nm at 1600 rpm	412 Nm at 1400 rpm	415 Nm at 1350 rpm
Max. engine speed without load	2200 rpm +/- 25 rpm	2350 rpm +/- 25 rpm	2660 rpm +/- 25 rpm	2200 rpm +/- 25 rpm	2330 rpm +/- 25 rpm
Idling speed	1000 rpm +/- 25 rpm	~ 1000 rpm +/- 25 rpm	~ 900 rpm +/- 25 rpm	1000 rpm +/- 25 rpm	~ 1000 rpm +/- 25 rpm
Fuel injection system	Direct injection				
Starting aid	Preheater (preheating time 15 seconds)	Glow plugs	Glow plugs	Preheater (preheating time 15 seconds)	Glow plugs
Max. inclined position (engine no longer supplied with oil):	30° in all directions	35° in all directions	30° in all directions		35° in all directions
Exhaust values according to	Tier 1	97/68/EC – tier 2 EPA tier 2	Tier 3	Tier 1	97/68/EC – tier 2 EPA tier 2

6.3 Travelling drive

Variable displacement pump	Model 6001		Models 9001/10001
	Up to serial number AD	From serial number AD	
Design	Not installed/ manual gearbox	Axial piston pump	Not installed/ manual gearbox
Displacement	-	71 cm³/rev (4.3in³/ rev)	-
Flow rate	-	184 l/min (48.6 gpm)	-
Max. service pressure	-	450 bar (6526 psi)	-
Boost pump (integrated in variable displacement pump)			
Design	-	Gear pump	-
Displacement	-	19.6 cm³ (1.2 in³)	-
Charging/boost pressure	-	25 bar(362.6 psi)	-

6.4 Brakes

Service brake/parking brake	Models 6001/9001/10001
Design	Hydraulic pedal-operated wet dual-circuit brake
Location	Brake discs in either axle
Effect	Additional brake effect on rear axle via cardan shaft, parking brake effect on front axle

6.5 Steering system

Steering system	Models 6001/9001/10001
Design	Hydrostatic chassis articulation steering with emergency steering features
Steering mode	Chassis articulation steering

6.6 Work hydraulics

Work hydraulics	Model 6001		Models 9001/10001
	Up to serial number AD	From serial number AD	
Hydraulic pump displacement	25 cm³/rev	22 cm³/rev	25 cm³/rev
Hydraulic pump flow rate	55 l/min (14.5 gpm)	57 l/min (15 gpm)	55 l/min (14.5 gpm)
Max. service pressure	220 bar (3191 psi)	220 bar (3191 psi)	220 bar (3191 psi)
Hydraulic tank capacity	70 l (18.5 gal)	70 l (18.5 gal)	70 l (18.5 gal)
Steering system	150 bar (2175.5 psi)	150 bar (2175.5 psi)	150 bar (2175.5 psi)

6.7 Skip

Skip	Model 6001F	Model 6001S	Model 9001	Model 10001
Skip capacity	2400 l struck (634 gal)		3850 l struck (107 gal)	4000 l struck (1056.7 gal)
	3200 l heaped (845 gal)		4700 l heaped (1241 gal)	4850 l heaped (1281 gal)
	1880 l liquid capacity (496.6 gal)		2250 l liquid capacity (594.4 gal)	2250 l liquid capacity (594.4 gal)
Payload	6000 kg (13227.7 lb)		9000 kg (19841.6 lb)	10010 kg (220484 lb)
Swivel angle	-	180 – 217°	-	-

6.8 Drive specifications

Steering system	Model 6001 Hydrostat	Models 6001/9001/10001
Drive speed I	0 – 5 kph	0 – 4.5 kph
Drive speed II	0 – 25 kph	0 – 7 kph
Drive speed III	-	0 – 14 kph
Drive speed IV	-	0 – 27 kph
Articulation	+/- 33°	+/- 32.5°
Oscillation	+/- 15°	
Outside turning radius	5200 mm (17’ 1’’)	6000 mm (19’ 8’’)
Hill climbing ability	50 % (theoretically) 25 % in all drive positions left/right	
Safe authorised inclination		

6.9 Electric system

Electric system	
Alternator	12 V 55 A
Starter	12 V 2.3 kW
Battery	12 V 100 Ah

Fuse box

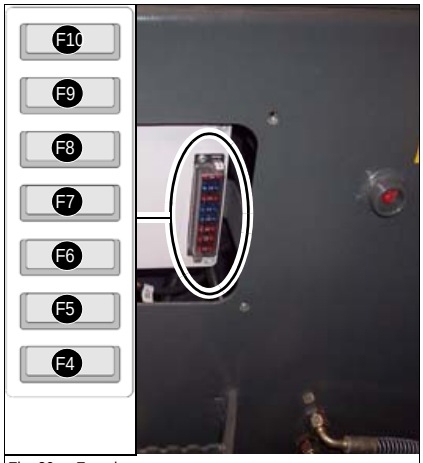


Fig. 39: Fuse box

Fuse	Rated current (A)	Protected circuit
F 4	10 A	– Preheating
F 5	15 A	– Drive solenoid valves
F 6	10 A	– Horn, brake lights
F 7	15 A	– Turn indicators
F 8	15 A	– High beam
F 9	10 A	– Low beam
F 10	10 A	– Clearance light
F 11	10 A	– Hazard warning system

Relays

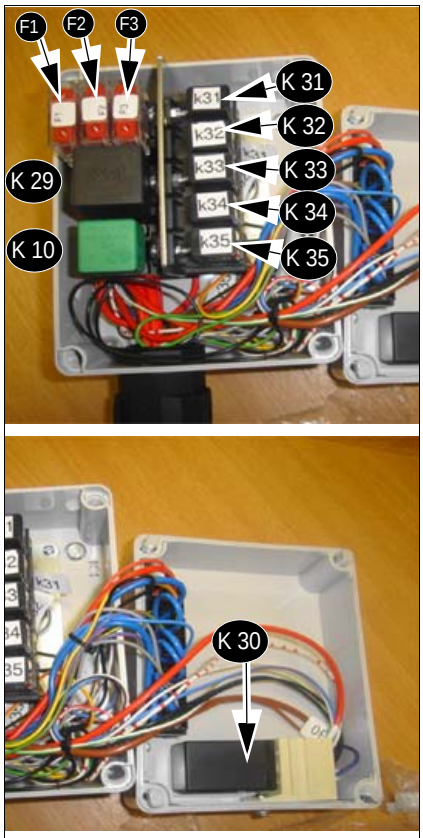


Fig. 40: Relays

The relays are located in the relay box under the the floor panel of the control stand

Switching relay no.	Protected circuit
F 1, F2, F3	– Main fuses (50 A)
K 10	– Turn indicator relay
K 29	– Preheating relay
K 30	– Deutz preheating time relay
K 31	– Low beam relay
K 32	– Preheating telltale relay
K 33	– High beam relay
K 34	– Parking brake telltale relay
K 35	– Start interlock relay

6.10 Tyres

Type	Tyre size	Tyre pressure		
		Front	Rear	Load-bearing capacity
6001	405/70-20 14 Ply	3.25 bar (47 psi)	3.25 bar (47 psi)	PR 14
9001/10001	500/60-22.5 12 PR	3 bar (43.5 psi)	3 bar 43.5 psi)	PR 12

6.11 Noise levels

Sound power level	Model 6001	Models 9001/10001
Sound power level (L_{WA})	102 dB (A)	103 dB (A)

Important!

Measurement of sound power level according to EC Directive 2000/14 EC. Noise level at the driver's ear measured according to EC Directives 84/532/EEC, 89/514/EEC and 95/27/EEC.
Measurements carried out on asphalted surface.

6.12 Coolant compound table

Outside temperature	Coolant			
	Water	Anticorrosion agent		Antifreeze agent
Up to °C	% by volume	cm³/l (cu in/gal)	% by volume	% by volume
4 (39.2)	99	10 (2.6)	1	–
-10 (14)	79			20
-20 (-4)	65			34
-25 (-13)	59			40
-30 (-22)	55			44

6.13 Dimensions model 6001F (front skip)

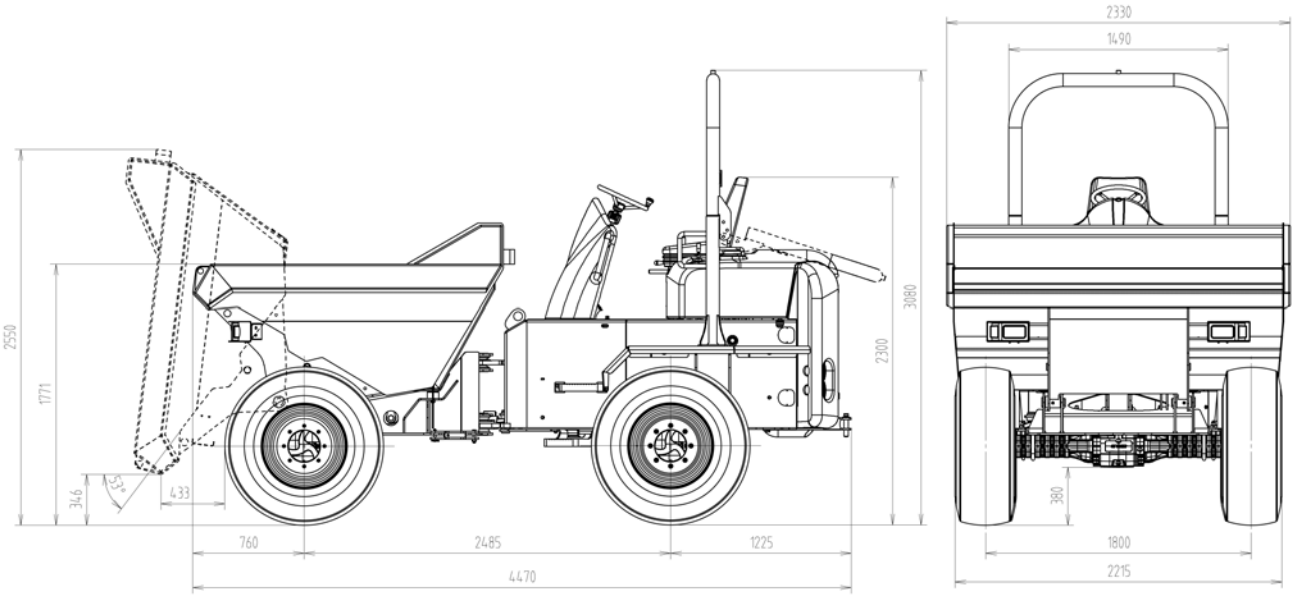


Fig. 41: Machine dimensions (model 6001F)

Main data	Model 6001F
Dead weight	4120 kg (9083 lb)
Overall height	3080 mm (10’ 1’’)
Overall height with dumped-out skip	2550 mm (8’ 4’’
Overall height without rollbar	2300 mm (7’ 6’’
Overall width	2215 mm (7’ 3’’)
Ground clearance	380 mm (1’ 3’’)
Wheelbase	2485 mm (8’ 2’’)
Outside turning radius	5500 mm (18’ 1’’)
Hill climbing ability	50 % theoretically
Safe authorised inclination	25 % in all drive positions

6.14 Dimensions model 6001 S (swivel skip)

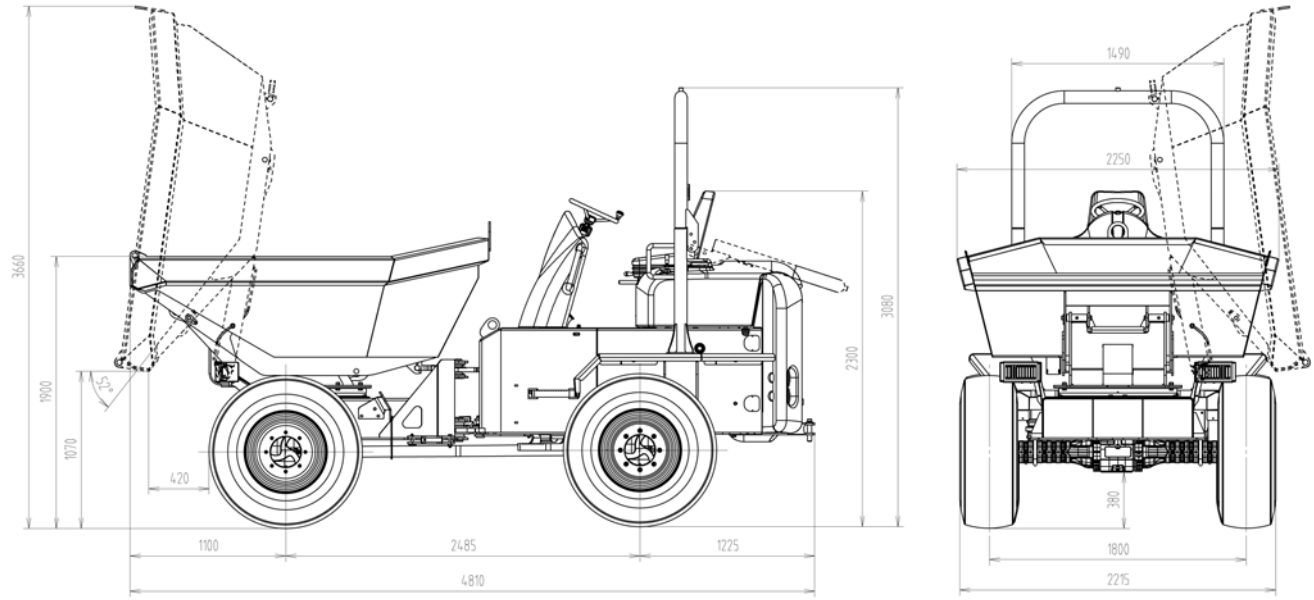


Fig. 42: Machine dimensions (model 6001S)

Main data	Model 6001S
Dead weight	4240 kg (9348 lb)
Overall height	3080 mm (10’ 1’’)
Overall height with dumped-out skip	3660 mm (12’)
Overall height without rollbar	2300 mm (7’ 7’’)
Overall width	2215 mm (7’ 3’’)
Ground clearance	380 mm (15’’)
Wheelbase	2485 mm (8’ 2’’)
Outside turning radius	5500 mm (18’ 1’’)
Hill climbing ability	50 % theoretically
Safe authorised inclination	25 % in all drive positions

6.15 Dimensions model 6001 S (swivel skip) with cab

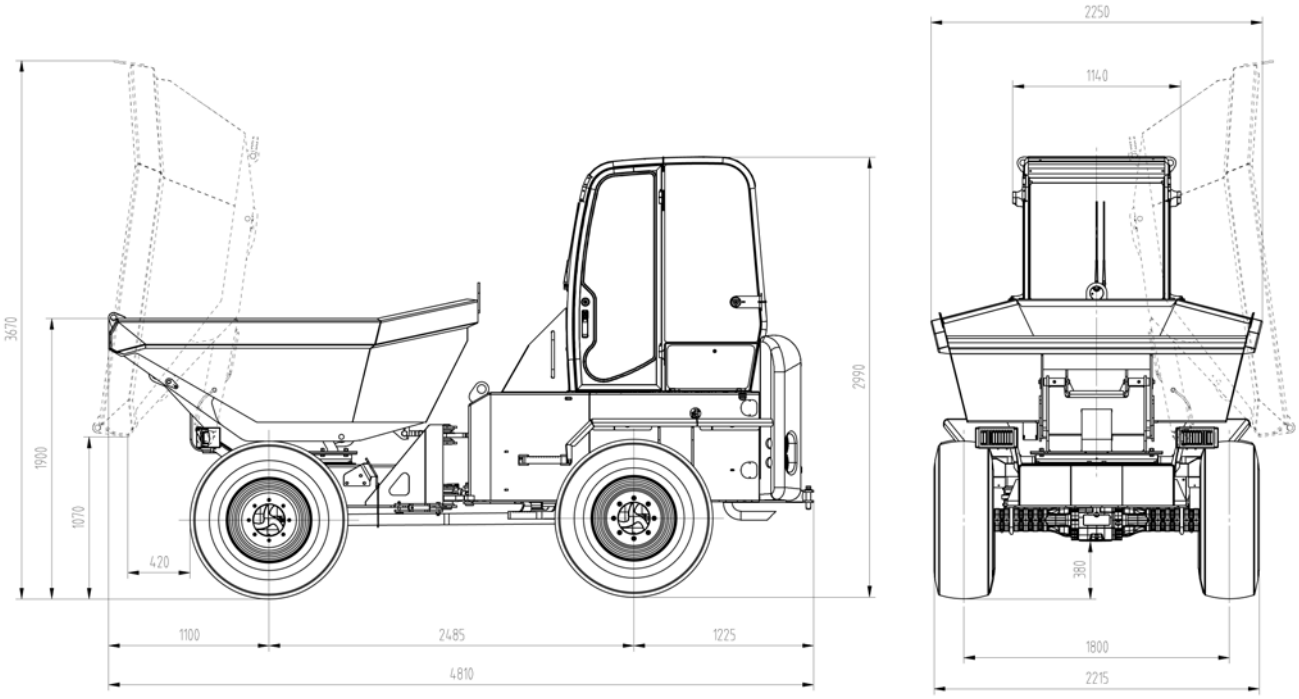


Fig. 43: Machine dimensions (model 6001S with cab)

Main data	Model 6001S
Dead weight	4320 kg (9524 lb)
Overall height	2990 mm (9’ 10’’)
Overall height with dumped-out skip	3670 mm (12’)
Overall height without cab	2300 mm (7’ 7’’)
Overall width	2215 mm (7’ 3’’)
Ground clearance	380 mm (15’’)
Wheelbase	2485 mm (8’ 2’’)
Outside turning radius	5500 mm (18’ 1’’)
Hill climbing ability	50 % theoretically
Safe authorised inclination	25 % in all drive positions

6.16 Dimensions model 9001

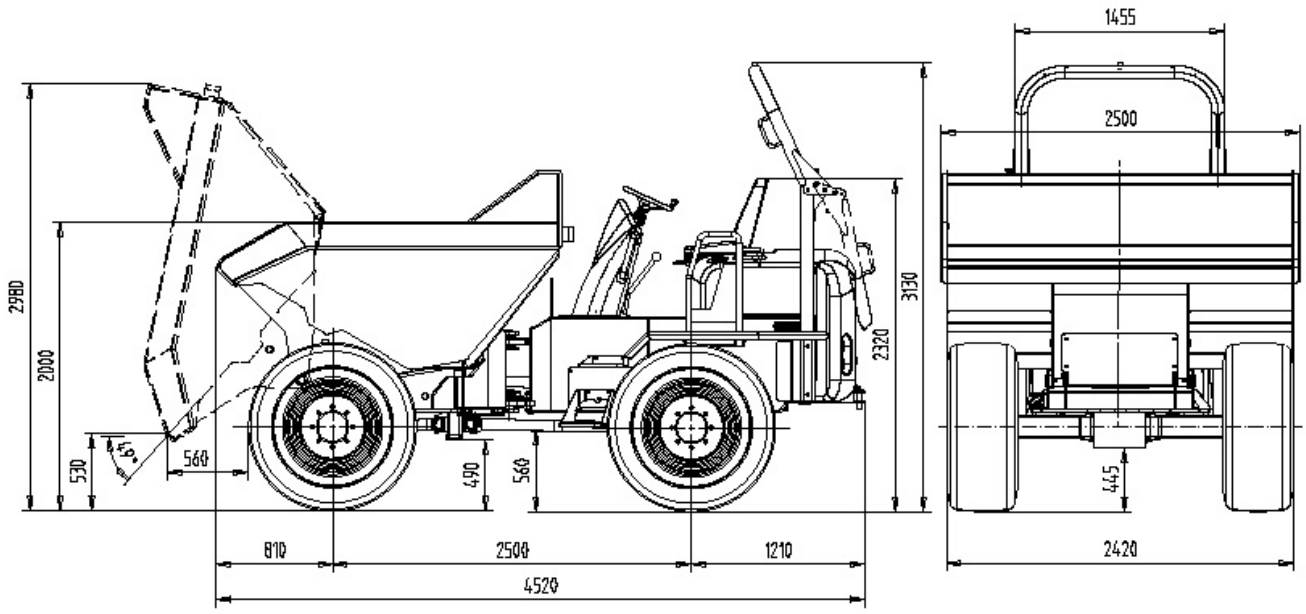


Fig. 44: Machine dimensions (model 9001)

Main data	Model 9001
Dead weight	4750 kg (10472 lb)
Overall height	3130 mm (10’ 3’’)
Overall height with dumped-out skip	2980 mm (9’ 9’’)
Overall height without rollbar	2320 mm (7’ 7’’)
Overall width	2420 mm (7’ 11’’)
Ground clearance	445 mm (1’ 6’’)
Wheelbase	2500 mm (8’ 2’’)
Outside turning radius	5500 mm (18’ 1’’)
Hill climbing ability	50 % theoretically
Safe authorised inclination	25 % in all drive positions

6.17 Dimensions model 10001

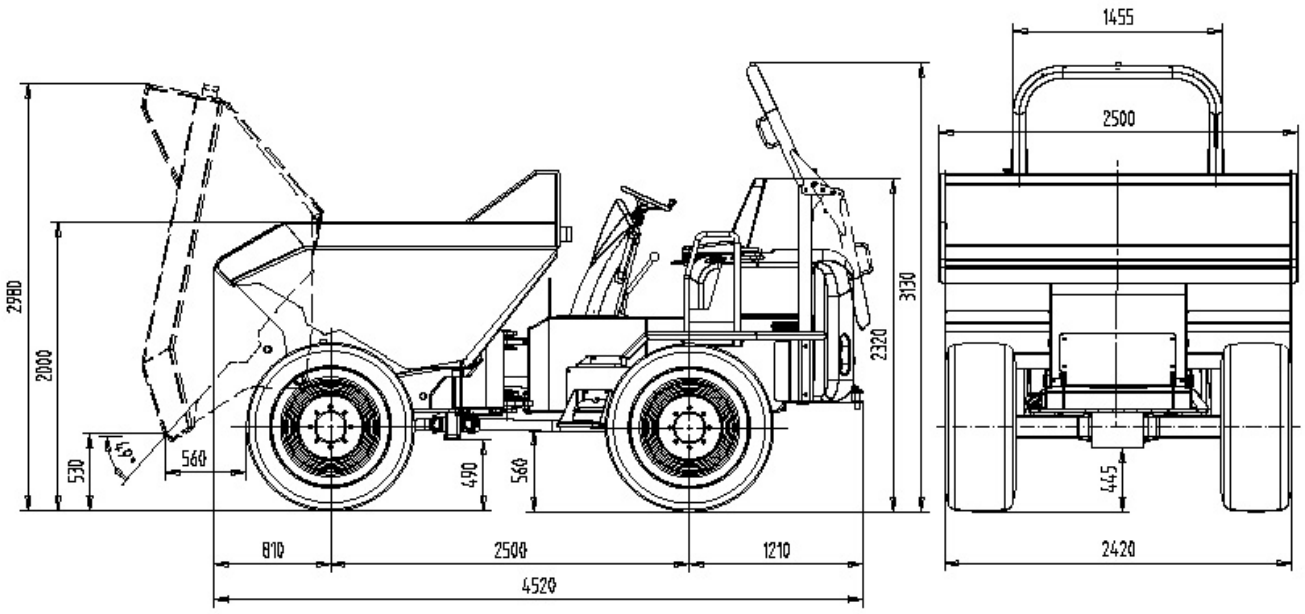


Fig. 45: Machine dimensions (model 10001)

Main data	Model 10001
Dead weight	4780 kg (10538 lb)
Overall height	3130 mm (10’ 3’’)
Overall height with dumped-out skip	2980 mm (9’ 9’’)
Overall height without rollbar	2320 mm (7’ 7’’)
Overall width	2420 mm (7’ 11’’)
Ground clearance	445 mm (1’ 6’’)
Wheelbase	2500 mm (8’ 2’’)
Outside turning radius	5500 mm (18’ 1’’)
Hill climbing ability	50 % theoretically
Safe authorised inclination	25 % in all drive positions

7 Safety instructions for operation of earth moving machines

7.1 Preliminary remark

The following machines are designated as earth moving machines:

- Excavators
- Loaders
- Backhoe loaders
- Dozers
- Dumpers
- Scrapers
- Graders
- Pipe laying machines
- Trench cutting machines
- Compactors and
- Other special earthmoving machines.

Instructions for the safe operation of earth moving machines are given in the following.

Also comply with the national safety standards – such as regulations for accident prevention or safety guidelines for machine maintenance – during operation and maintenance of earth moving machines.

In addition to the Operator's Manual, also bear in mind the legal regulations concerning public road traffic and accident prevention. These regulations may also deal with handling hazardous substances or wearing personal protective equipment.

Also bear in mind the existing safety regulations concerning specific work sites (tunnels, day drifts, quarries, pontoons, contaminated areas, etc.).

7.2 Designated use

7.2.1 Earth moving machines may be used only in compliance with their designated use, and by following the instructions given in the Operator's Manual of the manufacturer.

7.2.2 Designated use means that the earth moving machine is used with the work equipment for work in compliance with the European or national work safety regulations, or that the earth moving machine is used for other work the manufacturer has deemed the machine to be suitable for.

7.2.3 The operator may not carry out any safety-relevant modifications on the earth moving machine without the manufacturer's authorisation.

7.2.4 Spare parts must comply with the technical requirements specified by the manufacturer.

7.3 General

7.3.1 Earth moving machines may be driven and serviced only by persons who meet the following requirements:

- Physically and mentally suited for this work
- Persons have been instructed in driving or servicing the earth moving machine and have proven their qualifications to the contractor.
- Persons are expected to carry out work reliably.

Observe statutory minimum age limits.

7.3.2 Avoid any operational mode that might be prejudicial to safety.

7.3.3 Do not exceed the authorised load of the earth moving machine.

7.3.4 Operate the earth moving machine only in a safe and reliable state.

7.3.5 Follow the instructions given in the Operator's Manual of the manufacturer for all work involving operation, maintenance, repair, assembly and transport.

7.3.6 If necessary, the operator must supplement the safety instructions by specific instructions adapted to the local conditions of the work site.

7.3.7 The Operator's Manual and safety-relevant instructions must be carefully stored in the control stand. The manual and the safety instructions can be stored at the work site itself if the earth moving machine has no cab.

7.3.8 The Operator's Manual and the safety instructions must be complete and legible.

7.3.9 Do not disable the function of the earth moving machine's safety equipment during operation.

7.3.10 Wear protective work clothes during work. Avoid wearing rings, scarves, unzipped or unbuttoned jackets. Specific work can require wearing protective goggles, safety shoes, a hard hat, protective gloves, reflective vests, ear protectors, etc.

7.3.11 Get informed on first aid and rescue possibilities (emergency physician, fire brigade, helicopter) before starting work.

Check whether the first-aid kit is installed and whether its contents are in compliance with regulations.

7.3.12 You must be familiar with the location and the operation of fire extinguishers on the earth moving machine, and with the local fire alarm and fire fighting facilities.

7.3.13 Secure loose parts, such tools or other equipment, on the earth moving machine.

7.3.14 Secure open doors, windows, covers, lids, etc., to prevent them from closing unintentionally.

7.4 Danger area

7.4.1 All persons must stay clear of the danger area of the earth moving machine.

The danger area is the area around the earth moving machine in which persons are at risk by work-specific movements of the earth moving machine, its work equipment and attachments, by slewing or falling material, or by falling work equipment.

7.4.2 The machine operator may work with the earth moving machine only if no-one is in the danger area.

7.4.3 The machine operator must give warning signs in case of danger for persons.

7.4.4 The machine operator must stop work with the earth moving machine if persons do not leave the danger area in spite of his warnings.

7.4.5 Do not step onto the articulation of articulation-steered earth moving machines if the engine is running.

7.4.6 Keep a sufficiently safe distance (min. 500 mm / 8'') to fixed elements of construction, e.g. buildings, walls to be pulled down, scaffolds or other machines to avoid danger of crushing.

7.4.7 If a safe distance cannot be kept, seal off the area between fixed elements of construction and the work range of the earth moving machine.

7.4.8 If the operator's visibility onto his drive and work range is impaired by work-specific circumstances, instruct the operator or seal off the drive and work range with a fixed barrier.

7.5 Stability

7.5.1 Always use, drive and operate the earth moving machine ensuring stability and safety from turning over (see also item 7.3).

7.5.2 The operator must adapt his drive speed to the prevailing conditions and lower the work equipment the closest possible to the ground when driving on sloping or uneven terrain.

7.5.3 Follow the instructions given in the specific sections of the Operator's Manual of the manufacturer when using an earth moving machine equipped with additional outriggers or supporting equipment for increasing stability.

7.5.4 Keep the earth moving machine at a safe distance from the edges of quarries, pits, ditches, slopes or embankments to avoid danger of falling.

7.5.5 When driving or working near excavations, shafts, trenches or the edge of pits and embankments, secure the earth moving machine to prevent it slipping or rolling away.

7.6 Operation

7.6.1 General

7.6.1.1 Machine operators must be appointed by the contractor for driving and servicing the earth moving machine.

7.6.1.2 Controls (operating elements) may be actuated by the driver or from the driver's seat only.

7.6.1.3 Use the footholds and surfaces provided for to access the machine. Keep them clean to ensure a safe hold at all times.

7.6.1.4 If the work equipment of the earth moving machine can be picked up and set down with a quickhitch, the lock of which cannot be easily seen from the driver's seat for reasons of design or dirt, take the following additional safety measures:

- The driver or another person must make sure that the work equipment is firmly hitched by checking the quickhitch connection itself.
- If this is not possible, raise the work equipment only until you can check it is firmly hitched by dumping it in and out.

All other persons must stay clear of the danger area during this check.

7.6.2 Transporting persons

7.6.2.1 Apart from the driver, persons may be transported on earth moving machines only if specific places have been provided for by the manufacturer.

These places must be provided with firm seats and restraints to prevent falling off the earth moving machine.

7.6.2.2 Persons may access or leave the earth moving machine only after the machine operator has allowed them to do so, and only after the machine is at a standstill.

7.6.3 Drive operation

7.6.3.1 In order to ensure safe work, adjust the seat, the rearview mirrors and the controls before putting the earth moving machine into operation.

7.6.3.2 Fasten the seat belt if the earth moving machine is fitted with a rollover protection structure (ROPS).

7.6.3.3 The windows must clean and free of mist or ice.

7.6.3.4 Do not use cold-starting aids (ether) near heat sources, naked flames or in poorly ventilated premises.

7.6.3.5 The layout of roads and paths must ensure smooth and safe operation, i.e. they must be sufficiently wide, have sufficient load-bearing capacity and the slightest possible slopes.

7.6.3.6 Observe the load-bearing capacity of bridges, basement ceilings, vaults etc., before moving the machine on them!

7.6.3.7 Bear in mind the clear widths and heights of underpasses, tunnels, etc. before driving through them.

7.6.3.8 When driving on steep slopes, carry loads on the uphill side, if possible, in order to increase stability.

7.6.3.9 Do not drive downhill with the clutch disengaged. Shift to a gear adapted to the terrain before driving down a slope, and do not shift gears on the slope.

7.6.3.10	When driving on slopes, select a route that will enable you to brake the earth moving machine safely.
7.6.3.11	Avoid reversing over longer distances.
7.6.3.12	Earth moving machines may be driven on public roads only if the operating and driving licences as defined by national traffic regulations have been obtained for them.
7.6.3.13	When not driving on public roads, e.g. construction sites, apply the road traffic rules accordingly. This also applies to driving permits.
7.6.4	Load and unloading
7.6.4.1	The machine operator may move the work equipment across persons in driver seats or work stations of other machines only if they are protected by canopies (FOPS).
7.6.4.2	If not protected accordingly, the driver of this vehicle must leave the operator's place if moving the work equipment across his place cannot be avoided.
7.6.4.3	When loading vehicles, make sure they are not overloaded and that they will not loose any material when driving. Load them from the lowest possible height.
7.6.4.4	If possible, the places where material is unloaded should enable the driver to avoid reversing over longer distances.
7.6.4.5	At places where material is dumped, operate earth moving machines only after having taken appropriate measures to prevent the machines from falling down or rolling away under their own weight.
7.6.5	Persons giving instructions
7.6.5.1	Persons giving instructions must be easily visible, e.g. by means of high-visibility warning clothes. They must maintain visual contact with the machine operator.
7.6.5.2	When carrying out their duty, persons giving instructions must not be assigned other tasks that could distract them from their duty.
7.6.6	Operation with risk of falling objects
7.6.6.1	In case of danger of heavy objects falling down, use earth moving machines only if the driver's seat is equipped with a canopy (FOPS), and with an additional front protection in the case of excavators.
7.6.6.2	When working in front of earth and rock walls, if possible position and operate the earth moving machine with the control stand and the access to the control stand facing the side opposite the wall.
7.6.6.3	Demolition work may be carried out with earth moving machines only if no persons are at risk.
7.6.6.4	When carrying out demolition work with excavators (e.g. with demolition balls), make sure the weight of the ball matches the boom length and the load-bearing capacity of the machine.
7.6.6.5	If possible, the highest point of the work equipment of the earth moving machine must be higher than structure to be demolished.

7.6.7 Working in the area of underground electric lines

7.6.7.1 Before excavating with earth moving machines, find out whether there are any underground electric lines in the work area that might put persons at risk.

7.6.7.2 If there are underground electric lines, determine the positions and the routing of these lines, and define and carry out the required safety measures after having agreed upon these activities with the owner or operator of the lines.

7.6.7.3 Before starting excavation work, clearly mark the routing of lines in the area of the construction site in the presence of the owner or operator. If the position of lines cannot be determined, dig trenches to search for the lines (by hand if necessary).

7.6.7.4 If the machine operator damages or unexpectedly comes across underground electric lines or their protective covers, he must stop work immediately and inform the person supervising the activities.

7.6.8 Working next to overhead electric lines

7.6.8.1 When working next to overhead electric lines and contact lines with the earth moving machine, maintain a safe distance (depending on the rated voltage of the lines) between these lines and the earth moving machine and its work equipment in order to avoid any current transfer. This also applies to the distance between these lines and attachments or loads.

7.6.8.2 The following safe distances apply in Germany:

Rated voltage	Safe distance
Up to 1000 V	1.0 m / 3’ 3’’
Over 1 kV to 110 kV	3.0 m / 9’ 10’’
Over 110 kV to 220 kV	4.0 m / 13’ 1’’
Over 220 kV to 380 kV	
Or unknown rated voltage	5.0 m / 16’ 5’’

7.6.8.3 In doing so, also bear in mind all work movements of the earth moving machine , e.g. boom positions, swinging of ropes and the size of hitched loads. Also bear in mind uneven ground resulting in an inclined position, and hence in a shorter distance of the earth moving machine to overhead electric lines.

Both overhead electric lines and the work equipment can be deflected even by slight wind, resulting in a reduced distance to the lines.

7.6.8.4 If no sufficient distance can be kept to overhead electric lines and contact lines, the contractor must take other safety measures to avoid current transfer after having agreed upon these activities with the owner or operator of the lines. This can be achieved, for instance, by

- switching off the current,
- re-routing the overhead electric line,
- protecting overhead electric lines by installing them underground or
- limiting the work range of the earth moving machine.

7.6.8.5 In case of a current transfer or if the machine touches a live wire, the following rules apply:

- Do not leave the control stand
- Warn others against approaching and touching the machine
- If possible, move the work equipment or the entire earth moving machine out of the danger area
- Have the live wire de-energised!
- Leave the machine only after the damaged line/the line you have come into contact with is de-energised.

7.6.9 Operation below ground and in enclosed areas

When using earth moving machines below ground and in enclosed areas, ensure adequate ventilation and follow the regulations that are in force.

7.6.10 Breaks/work interruptions

7.6.10.1 During breaks and at the end of a shift, the driver must park the earth moving machine on firm and level ground and secure the machine against unintentional movements.

Lower the work equipment to the ground or secure it in order to prevent unintentional movements.

7.6.10.2 The driver may not leave the earth moving machine if the work equipment has not been secured or lowered to the ground.

7.6.10.3 Park the earth moving machine only in places where it will not pose an obstacle, e.g. to traffic on public roads or construction sites.
If necessary, install warning devices, such as warning triangles, warning tape, flashing or warning lights, etc.

7.6.10.4 The driver must move all controls to their zero positions and apply the brakes before leaving the control stand.

7.6.10.5 The driver must switch off the engines and secure them against unauthorised start-up if he goes away from the earth moving machine.

7.6.11 Applications with lifting gear

7.6.11.1 Applications with lifting gear are understood as procedures involving raising, transporting and lowering loads with the help of slings and load-securing devices (ropes, chains, etc.). In doing so, the help of persons is necessary for securing and detaching the load.

This applies for example to lifting and lowering pipes, shaft rings or containers with earth moving machines.

7.6.11.2 The earth moving machine may be used for applications with lifting gear only if the prescribed safety devices are in place and functional.

In the case of hydraulic excavators, these are for example:

- Safe possibilities of slinging and securing lifting gear
- Load diagram
- And in addition, for hydraulic excavators with an authorised load of over 1000 kg or an overturning moment of over 40 000 Nm
- Safe load indicator
- Hose burst valve(s) on the boom lift ram(s)

7.6.11.3 The load must be secured so as to prevent it from falling or slipping.

7.6.11.4 Persons guiding the load or securing it must stay in visual contact with the machine operator.

7.6.11.5 The machine operator must guide the load the nearest possible to the ground and avoid any oscillating or swinging movements!

7.6.11.6 The earth moving machine may be driven with a raised load only if the path of the machine is as level as possible!

7.6.11.7 When using earth moving machines for lifting gear applications, the persons attaching or securing loads may approach the boom from the side only, and only after the machine operator has given his permission. The machine operator may give his permission only after the machine is at a standstill and the work attachment no longer moves!

7.6.11.8 Do not use any lifting gear (ropes, chains) which is damaged or not sufficiently dimensioned. Always wear protective gloves when working with lifting gear.

7.7 Assembly, maintenance, repair

7.7.1 The earth moving machine may be assembled, modified or disassembled only in accordance with the Operator's Manual of the manufacturer and only under the supervision of suitable staff appointed by the contractor.

7.7.2 For instance, work on the

- Brake
- Steering
- Hydraulic and
- Electric systems

of the earth moving machine may be carried out only by specially trained staff.

7.7.3 Stability must be ensured at all times during maintenance work.

7.7.4 Secure the work equipment against movement by lowering it to the ground or by taking appropriate measures, e.g. supporting brackets or sleeves. If necessary, secure the upper carriage of the excavator against rotation.

7.7.5 When carrying out maintenance and repair work on an earth moving machine with an articulated joint, secure the joint with a positive lock when working in the area of the articulated joint.

7.7.6 When installing or removing counterweights, hitch them only at the points provided for by the manufacturer.

7.7.7 When jacking up the earth moving machine, place the lifting device in a position that will avoid slipping. Installing or placing the lifting device in inclined positions is not permissible.

7.7.8 Secure the raised earth moving machine by supporting it with, for instance, supporting frames or trestles, or with boards or square beams stacked crosswise.

Safely prop the earth moving machine immediately after it has been raised with the work equipment. Working under a raised earth moving machine that is held only by the hydraulics is not permissible.

7.7.9	Before replacing the bucket blades of scrapers, make sure the buckets are set down on a base avoiding tipping or damage.
7.7.10	Maintenance and repair work on scraper buckets may be carried out only if the lock flap is secured.
7.7.11	Switch off all drives before carrying out maintenance and repair work. An exception to this requirement is maintenance and repair work that cannot be carried out without a drive. In case of danger, it must be possible to switch off the drive immediately during this work.
7.7.12	Disconnect the battery before carrying out arc welding or before working on the electric system of an earth moving machine fitted with an internal combustion engine.
7.7.13	First remove the negative terminal, and then the positive terminal as you disconnect the battery. Proceed in the reverse order as you reconnect the battery.
7.7.14	Cover the battery with insulating material as you carry out repair work in the area of the battery; do not place any tools whatsoever on the battery.
7.7.15	In the case of earth moving machines with electric drives, switch off the electric equipment and if necessary, the movable connecting lines as well, and secure against unintentional or unauthorised start-up.
7.7.16	Open or remove protective devices of moving machine parts only if the drive has been switched off and secured against unauthorised start-up. Protective devices are e.g. engine covers, doors, protective screens, trims, etc.
7.7.17	Fit all the protective devices back on again correctly once assembly, maintenance or repair work is over.
7.7.18	Welding work on load-bearing elements of the earth moving machine, e.g. lattice booms, loader units, may be carried by only in compliance with the acknowledged welding regulations.
7.7.19	Do not carry out any welding, boring or drilling on rollover protection structures (ROPS) or canopies (FOPS) that could affect the stability of this equipment.
7.7.20	Any modification, such as welding the hydraulic or compressed-air system, may be carried out only with the manufacturer's authorisation.
7.7.21	Before starting work on the hydraulic system, release the control and the back pressures, and the pressure inside the tank.
7.7.22	Use only the hoses and lines prescribed by the manufacturer.
7.7.23	Install and route hydraulic hoses and lines correctly.
7.7.24	No smoking and no naked flames during refuelling.

7.8 Towing and transporting

7.8.1 Tow the earth moving machine only with a towing facility of sufficient size.

7.8.2 Use the towing points, such as eyelets, hooks, etc., prescribed by the manufacturer.

7.8.3 Move off slowly when towing. All persons must stay clear of the towing facility.

7.8.4 When loading and transporting the earth moving machine, secure the machine itself and the auxiliary means against unintentional movements.

7.8.5 Remove mud, snow and ice from the running gear and the undercarriage of the earth moving machine in order to ensure safe driving on ramps with no danger of slipping.

7.8.6 Place wooden boards on the access ramps of flat-bed trailers before driving on them with tracked machines.

7.8.7 Inspect the planned route before moving off, to make sure the roads are sufficiently wide, that bridges and clearances are of sufficient size and that the roads, paths and bridges have sufficient load-bearing capacity.

7.9 Monitoring

7.9.1 Adhere to the prescribed intervals for routine checks.

7.9.2 Before every work shift, the driver must also check the function of the safety, drive and work equipment, such as the safe load indicator, brakes, steering system and lights in accordance with the manufacturer's instructions.

When installing work equipment onto the quickhitch, make sure the work equipment is firmly hitched by moving it in all positions. In doing so, all persons must stay clear of the danger area.

7.9.3 Replace hydraulic hosees as soon as the following damage is detected:

- Damage on the outside layer up to the inner ply
- Embrittlement on the outside layer
- Deformations in pressurised or unpressurised state which do not correspond to the original shape of the installed hose
- Leaks
- Damage on the hose fittings or on the connection between the fitting and the hose
- Damage due to storage (storage time of a hose must be under 2 years)
- Damage due to use beyond the service life (service life is no longer than 6 years if used under normal load).

7.9.4 Check the coolant level only after the filler cap has cooled down. Open the cap carefully to release overpressure.

7.9.5 The driver must immediately report damage to the person supervising the activities. If drivers change, he must also report to the next driver.

7.9.6 In case of defects affecting the operational safety of the earth moving machine, put the machine out of operation until the defects have been remedied.

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